

JOB DESCRIPTIONS
for the
**LUMBER AND LUMBER
PRODUCTS INDUSTRIES**

Including
**SAWMILL, PLANING MILL, EXCELSIOR
AND GENERAL WOODWORKING JOBS**

JUNE



1939

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Including
SAWMILL, PLANING MILL, EXCELSIOR
AND GENERAL WOODWORKING JOBS

Prepared by
THE JOB ANALYSIS AND INFORMATION SECTION
DIVISION OF STANDARDS AND RESEARCH

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UNITED STATES DEPARTMENT OF LABOR
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SPECIAL NOTICE

These job descriptions have been prepared by the United States Employment Service for the use of public employment offices and related vocational services, and for that use alone.

Each description has been compiled from a number of observations and, therefore, describes the occupation in a generalized, composite form. Consequently, no description can be expected to coincide exactly with any specific job in a particular establishment or in a particular locality. To be of greatest usefulness locally, the job descriptions should be supplemented by local information concerning the specific jobs in the community.

The United States Employment Service has no place in the determination of jurisdictional matters or in the setting of wages and hours. Plans for the Job Analysis and Information Section have never encompassed consideration of such things, and no facts concerning them were collected. It should be clearly understood, therefore, that because of their general nature, job descriptions published by the Employment Service cannot be considered standards for the determination of hours, wages, or jurisdictional matters.

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The *Introduction* of this study is devoted to the general discussion of such occupational information concerning the industry as was available at the time of editing; a description of processes in Sawmills, Planing Mills, Seasoning Yards, and establishments manufacturing shaped wooden articles; and an explanation of the physical arrangement of the material in the book. A selected *Bibliography* and an explanatory *Outline* of the format used in describing the occupations follow the *Introduction*.

The *Job Descriptions* are arranged, as explained more fully on page 3, in groups according to apparent functional relationships between jobs. The *Glossary* includes such terms commonly used in the industry as have been referred to in the Job Descriptions, but no attempt has been made to compile a complete glossary of Lumber and Lumber Products nomenclature.

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FOREWORD

The job descriptions contained in this volume are based on information gathered by trained field analysts from actual observation of typical jobs. Every effort has been made to corroborate each detail, by comparing the field analyses with one another and by consulting qualified experts in the industry.

Nevertheless, it is inevitable that closer inspection and continued use will disclose inadequacies and inaccuracies, especially as changes in techniques and organization force corresponding changes in occupations. It is in recognition of this that the volume has been issued in loose-leaf form.

The Job Analysis and Information Section will be grateful to the personnel of the Employment Service and to any other qualified critics who will point out changes that ought to be made in the interest of accuracy and completeness. The forms on the following pages have been provided for reporting changes, in the hope that they will be generously used.

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Grateful acknowledgment is made to the Works Progress Administration for its financial assistance in the accumulation of data for these job descriptions, and to the following organizations and companies who generously aided by supplying invaluable information, charts, photographs, and catalogs or by making their plants available for the analysis of jobs, special indebtedness is acknowledged:

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INTRODUCTION

SCOPE

Grouped in this volume are descriptions of general woodworking and related jobs that are common to several industries; descriptions of jobs peculiar to the Sawmill Industry, which deals with the conversion of logs into rough lumber; the Planing Mill Industry, which embraces the processing of lumber in the production of millwork and cabinet work; and the Excelsior Industry, which is concerned with the making of excelsior. This volume does not include descriptions of occupations peculiar to the processes involved in the manufacture of wooden products, such as furniture, boxes, barrels, shingles, or veneer.

Since many jobs in these industries are closely related, they have been treated without regard to industry and are presented in groups according to the type of work. (See page 3.)

Logging Industry jobs have been reserved for treatment in a separate volume, and certain jobs in large sawmills, particularly the large Western mills, and in those mills that receive their logs by water, have been omitted because of the present lack of available information.

EVOLUTION OF THE INDUSTRIES

Since colonial times the Lumber and Lumber Products Industries have evolved from a home industry, supplying individual land owners with

own land, to America's fifth largest industrial manufacturing group¹ in point of number of workers employed.

This evolution has not been a smooth progression, but rather a series of abrupt moves and changes. In its early stages the industries were concentrated in New England, where an abundance of native forests and streams supplied a convenient source of raw material, water power, and transportation. As towns and villages grew, they demanded more lumber than was available through the clearance of farm land. To meet this demand, the logs were cut and taken to small, water-powered sawmills, usually operated in connection with the gristmills.

With the further growth of demand for lumber and the development of steam power, sawmills migrated to the Lake States from the North Atlantic forests in about 1850, taking up location in the midst of virgin forests.

Within a short time, however, the increasing demand for lumber and the improved productiveness of the sawmills demanded resources of timber beyond that of the region, and another migration, this time to the Southern areas of white and yellow pine, began in about 1880. The softwood of the South, because of its workability,

¹ Census of Manufactures; U. S. Department of Commerce; 1935.

brought about another change in fuel and building material from their woodworking procedure: the inclusion of the planing mill equipment in that of the large sawmill. This practice made possible the more complete utilization of the lumber and effected a reduction in shipping costs, since freight rates at the time were based upon the bulk of the shipment.

As the transcontinental railroads opened up vast new territories and forest lands, the hitherto untouched forests of the Pacific Coast were used to supply lumber for building in the Prairie States just east of the Rockies. Huge mills were built in the magnificent stands of Douglas Fir, Pine, and Redwood, and soon were supplying not only the adjacent region, but the Eastern market, which was made available by cheap water transportation through the Panama Canal.

Within the last few years, lack of new timber stands has encouraged the exploration of the frontiers of more efficient utilization of existing timber. Today, increasing emphasis is falling upon the utilization of timber for such products as alcohol, rosin, turpentine, and pulpwood to supplement or in conjunction with its utilization for lumber.

MECHANICAL DEVELOPMENT OF THE INDUSTRIES

As we have seen, the hand cutting and adz hewing of timber practiced by the colonial farmer soon gave way to sawing by water power as the new country became settled. The introduction of steam power in about 1850 gave the Sawmill Industry its initial impetus toward national rather than purely local enterprise. Shortly after

the adoption of steam power the band saw for logs began to supersede the circular saw, bringing about increased productiveness and more efficient utilization of logs. The bringing together of sawmill and planing mill operations in the same establishments which was first practiced in the South at about the time of the Civil War completed the basic development of the modern woodworking plant.

The development of the large mills logically led to the use of mechanical equipment, such as transfer chains and powered conveyors, which lightened the labor of moving lumber through the various processes and increased the productivity of the woodworkers.

At the turn of the century, the increased availability of electric power fostered the development of individual electric drives for the machines and started the exodus of the dangerous and inefficient shaft and belt drives that have cluttered the interior of most manufacturing establishments in this and other industries.

The recent development of mechanical equipment in planing mills has shown a trend toward the use of special machines, designed to do a single task or group of tasks more efficiently. For example, the grooves in window sash that provide clearance for the sash cord can be cut on a shaper, and the holes at the end of these grooves, into which the sash-cord knots are fastened, can be made on a single-spindle boring machine. The plowing-and-boring machine, however, has been developed to perform these operations and results in a considerable saving in the time necessary to make ready the machines and execute the operations.

In recent years the most striking mechanical developments have been for the promotion of safety and healthful surroundings. The modern wood-working machine is as completely guarded as human ingenuity can make it, so that even a careless worker has a much better chance to escape mutilation by machinery than the most careful worker of former times. Complete installations for the removal of sawdust and shavings from about the machines have taken most of the annoying and unhealthful dust from the air, preventing the dangerous accumulation of waste material in and about work areas.

PRESENT STATUS OF THE INDUSTRIES

Today the Lumber and Lumber Products Industries, with their 350,000 workers, comprise the fifth largest American manufacturing industry in point of number of workers employed.² There are approximately 10,000 establishments³ in the country that produce in the neighborhood of 20 billion board feet of lumber per year.⁴ From the employment viewpoint the Lumber and Lumber Products Industries rival the Automobile, Bakery, Cotton Goods Manufacturing, Garment, and Steel Industries.

The sawmill processing of lumber is carried on principally in those regions in which trees are harvested, over 70 percent of the workers being employed in ten States which lie in the four important forest regions⁵ (the Northern Great Lakes Region, the Pacific

Coast Region, the South Atlantic Region, and the Southwestern Region).

Employment in planing mills, while it is concentrated somewhat in the lumber producing regions, on the whole is better distributed geographically,⁶ since this type of enterprise is to be found wherever there is an appreciable demand for building material and dressed lumber.

The manufacture of shaped and turned wooden articles, except for that carried on in Arkansas and Tennessee, is concentrated in the Lake States and New England, 80 percent of the workers being employed in these regions.⁷

FUTURE TRENDS OF THE LUMBER AND LUMBER PRODUCTS INDUSTRIES

In 1906 the production of lumber in America had reached its peak. In that year more than 40 billion board feet of lumber,⁸ or enough to build a city that could house the combined population of New York and Los Angeles, was produced.

After this tremendous period of activity lumber production declined until in 1935 it was less than half the above figure. The decline might be traceable to the growing scarcity of economically obtainable standing timber and to the substitution of other materials for wood in construction.

In the future the industry may follow one of two courses. Some of the large mills, particularly in the West, may continue to operate indefinitely by pursuing a policy of reforestation to replace the timber harvested; or because of growing scarcity of big trees the big mills may cease

² Census of Manufactures; United States Department of Commerce; 1935.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

operation, being replaced by smaller, portable mills that will move from one wood lot to another in agricultural rather than forest country. Such mills might be family or neighborhood operated, the workers turning to agriculture to supplement their incomes during times of depressed lumber prices.

In any event there can be no further migration to virgin timber lands. Instead it is expected that the increased utilization of waste and small trees for such products as fence posts, poles, veneer, and wood pulp and the increased demand for byproducts such as alcohol, rosin, and turpentine will sustain the industry as a major employer.

If small, portable sawmills are to become the predominant producers of raw lumber, it is probable that the urban planing mills will continue to operate, being supplied with undressed lumber hauled in on trucks or by rail.

FLUCTUATIONS IN EMPLOYMENT

Today seasonality is not a serious factor affecting employment in the Lumber and Lumber Products Industries. It is estimated⁹ that at the depth of the end-of-the-year trough of employment in 1935, 80 percent of the workers employed during the summer peak were still at work. More serious fluctuations are occasioned by the rise and fall of lumber prices, which are reflected in employment statistics quite noticeably.

WORKING CONDITIONS

Surroundings.—All woodworkers are subjected to a certain amount of

noise, dust, and vibration, which are inseparable from the operation of high speed woodworking machinery. In addition, those employed in sawmills or in planing mills where the work has been subdivided for piece-work production may find the day-after-day repetition of an identical task monotonous. Sawmills usually provide the least desirable surroundings in two respects: they are apt to be more noisy than planing mills, and it is usual to operate them in winter without artificial heat, in some establishments the sides of the buildings being open to the elements.

Accident hazards.—All woodworkers are in danger of serious injury to the hands and fingers from accidental contact with the moving parts of high speed machinery, and, particularly, with mechanical knives and saws. Fatal accidents are relatively of low incidence in the industry, however.

Exposure to industrial disease.—The principal health hazard to woodworkers arises from the inhaling of sawdust which is prevalent in the air of woodworking plants despite mechanical equipment that draws away some of it. The effect of prolonged inhalation of organic dust is to predispose the victim to diseases of the respiratory tract, particularly to tuberculosis of the lungs.¹⁰ Workers in the vicinity of sandpapering machines may be in danger of silicosis from inhaling fine particles of silica thrown into the air from the abrasive surfaces.¹¹

¹⁰ Causes of Death by Occupation; Bulletin No. 507, Bureau of Labor Statistics, United States Department of Labor, 1930.

¹¹ Ibid.

⁹ Ibid.

WORKERS IN THE LUMBER AND LUMBER PRODUCTS INDUSTRIES

In classifying the workers in the Lumber and Lumber Products Industries into the three levels of skill, we have, first, the numerically small group of craftsmen or skilled workers, such as CABINETMAKER and MILLMAN; second, the very large group of semi-skilled workers most of whom operate woodworking machines; and, third, the large group of LABORERS who need only sufficient training to perform simple tasks under immediate supervision.

Educational qualifications.—The craftsmen should have a grade school education, or its equivalent, supplemented by apprenticeship or trade school training in the trade they follow. The semiskilled workers, who comprise the largest group, should be familiar with elementary arithmetic. The LABORERS need only speak English, although ability to read and write is desirable.

Physical qualifications.—All woodworkers, and particularly sawmill workers, should be of average strength and agility or better, because the work requires the rapid and continued handling of materials ranging from moderate to heavy in weight.

Training for workers.—No formal training for workers is provided in many establishments, the worker being required to progress by his own initiative, if at all. In some establishments, however, formal apprenticeship programs are in force.

Opportunities for advancement.—In general, advancement is to more interesting, more responsible, and better paid work. A few exceptional workers progress to supervisory or planning work.

ADVANTAGES TO WORK IN THE INDUSTRIES

The danger of contracting industrial diseases is not great. While accidents are fairly frequent, they are seldom fatal. The work is only slightly seasonal. In many regions, employment in the industries affords a practical means of supplementing farm income.

DISADVANTAGES TO WORK IN THE INDUSTRIES

Most woodworkers work in noisy, dusty surroundings, many out of doors or in unheated buildings or sheds. Many of the jobs are repetitive and monotonous. There is serious danger of injuring the hands and fingers.

PROCEDURE IN LUMBER AND LUMBER PRODUCTS ESTABLISHMENTS

In describing nature of the work involved in the industries included in this volume, a logical division can be made according to five general processes carried on at various establishments. They are: the cutting of forest logs into rough green boards and timber at sawmills; the shredding of short lengths of logs into excelsior at excelsior mills; the seasoning and drying of green lumber in kilns and lumber yards; the smoothing and partial fabrication of rough dried lumber into finished lumber and such building parts as doors, windows, and wood trim at planing mills; the carving and turning of such wooden articles as mantelpieces, tenpins, baseball bats, clothespins, and implement handles at shaped wooden article establishments; and the sharpening and setting of saws in all establishments. Each of these processes will be generally discussed in succeeding sections.

SAWMILL

Although the term "sawmill" is used loosely to refer to almost all lumber manufacturing plants, it most properly denotes an establishment that cuts planks, boards, and timbers from logs. Generally speaking there are two types of sawmills, the portable and the permanent. Portable sawmills, whose output of rough-cut lumber is comparatively small except

in the South and New England, are adapted to use in limited stands of timber or relatively inaccessible forest areas from which it would be difficult or unprofitable to transport logs. Such a mill has little auxiliary equipment beyond the edging and trimming saws which cut the sides and ends of the planks sliced from the logs at the head saw. Lumber produced by portable mills is often sent, rough-cut, to a concentration point for resawing and planing.

The typical permanent sawmill is a large factory-like structure with a yard for seasoning and storing lumber and such outbuildings as storage sheds, dry kilns, repair shops, and perhaps an attached planing mill. Mills of this order are generally equipped with conveyors and compressed air or electrical-control devices that facilitate rapid and efficient production.

LOG STORAGE

Usually the logging areas which supply the permanent plant are some distance from the mill, and logs must be hauled in by logging railroads or floated in "drives" down a river.¹

Endless power-driven chains, which move from the log storage area to the sawmill floor, are most commonly used to haul the logs into the large mill.

¹ Other transportation methods include sliding the logs along chutes or water flumes, sledding, and skidding, or hauling by truck, tractor, or animal power.

Metal shoes or dogs at intervals along the chain prevent the logs from slipping backward after they are pushed onto the chain by a worker, stationed at the foot of the trestle. The log buggy and the drag car, other common devices for hauling up the logs, are run up a trestle on rails. Logs are loaded directly upon the log buggy, but are simply hitched to the drag car, which slides back with the attaching hooks and chains after each haul-up.

In the smaller portable sawmill the logs may be dragged to the log deck by horses or tractors or hauled in by trucks. They are placed on the deck by hand, or through the use of a winch or derrick.

Once placed, the logs are in the charge of several log DECK MEN, who prepare them for sawing. Part of the work of the DECK MEN is that of shunting the logs from trestle to a skidway, along which they slide toward the log carriage. If a log buggy or drag car is used, the DECK MEN roll the logs upon the deck timbers with steel-shod levers (peavies); if the logs are hauled up by conveyor, a mechanical device, called a "kicker," may be used to jolt them off the chain and onto the skidway. The kicker mechanism is usually operated by the same worker who controls the conveyor. Another task performed on the deck, by a LOG SCALER, is that of measuring the length and diameter of each log, and recording the number of board feet received, after making due allowance for probable waste in sawing.

LOG CARRIAGE AND HEAD-SAW OPERATOR

The principal purpose of the head saw is to slice logs into long, thick

planks. Its principal parts are the head saw itself, which may be either a circular or a band saw, and the log carriage (a rail car upon which the log is supported). Each time the carriage rolls past the saw a slab or plank is sawed from the log. All parts of the operation are controlled by the HEAD-SAW OPERATOR, standing beside the saw, who moves levers to operate the carriage and log-control devices. He is assisted by one or two DOGGERS and a BLOCK SETTER, who adjust the position of the logs on the carriage, and by a HEAD-SAW OFF-BEARER, who directs the course of the slabs and planks cut off by the saw.

The logs rolling down the skids of the log deck are placed on the log carriage by hand, or with the aid of a winch, and clamped securely in position for sawing. Since the object of the first cut is usually to slice off a piece large enough to leave an appreciable flat surface on the log, the BLOCK SETTER adjusts a set of sliding knees on the carriage, so that the distance between the faces of the knees and the edge of the carriage is just a few inches less than the diameter of the log. The log rolls on the carriage until it is stopped by the knees, the DOGGERS operate levers to clamp sharp prongs (dogs) into the log to hold it in place, and the carriage rolls past the head saw, which saws off the portion of the log projecting beyond its edge. The carriage returns quickly, preparatory to taking another cut. The HEAD-SAW OPERATOR decides upon the thickness of the plank to be cut and signals to inform the BLOCK SETTER how far forward to move the carriage knees that

set the position of the log. A dial in front of the **BLOCK SETTER** enables him to adjust the thickness of cut within a fraction of an inch.

One plank after another is cut from the side of the log, as long as the lumber is of clear, high grade. When the saw begins cutting into less salable heartwood, the **HEAD-SAW OPERATOR** signals the **DOGGERS**, who release the dogs momentarily, while the log is turned to a new position with the sawed face resting against the carriage knees. Sometimes a log hook hoisted by an overhead winch is used to turn logs, or the **LOG TURNER** may turn them by hand. The log may be turned over several times before it is completely sawed, and an expert **HEAD-SAW OPERATOR** can decide almost instantly how to cut the log so that the maximum amount of high grade lumber can be manufactured from it.

Behind the head saw, the planks and slabs fall upon a conveyor, or are loaded upon carts. A **HEAD-SAW OFF-BEARER** stands behind the head saw, using a short-handled hook to flip over slabs, and shift planks so that they will land straight along the conveyor or cart.

A **TRIPPER** is also employed to shunt board lumber to chutes or conveyors leading to a resaw, or to the edger or trimmer saws. Waste material and slabs from which boards cannot be cut are carried on to the **LOG CUTTER** or **SCRAP SAWYER** to be sawed up for fuel or for by-product utilization.

RESAWING

The object of a resaw is either to slit a plank into two boards of lesser

thickness, or to cut a thick beam (cant) into several boards. In small mills, boards may be cut to thickness by the head saw or shipped without resawing, leaving this work for the planing mill; but mills that produce as much as 50,000 or 60,000 feet of lumber a day usually use a resaw to reduce the burden of work on the head saw.

Perhaps the most common type of resaw is a vertical band saw, somewhat narrower than the head saw. A **RESAW OPERATOR HELPER** guides the planks or cants, edge upward, into two or more pairs of vertical rotating pressure rolls, which may be set to receive timbers of various thicknesses and feed them to the resaw. The **RESAW OPERATOR** who sets the rollers may adjust the machine to be self-centering, that is, to cut the plank into two boards of equal thickness, or he may saw boards of a desired thickness from one side of the timber.

If one cut through the plank is sufficient, the **RESAW OPERATOR HELPER**, who is stationed behind the resaw, sends on the boards to be edged and trimmed. Planks and timbers that require further resawing are sent to the front of the saw and run through again.

EDGING

Head saws and resaws simply cut the log lengthwise. The boards they produce still have rough edges that have to be cut straight and square on an edging saw and uneven ends that require trimming. When the **EDGER MAN** receives the boards, he slides them, end foremost, along a

low feed table and aligns them with a metal guide. At the other end of the table, a pair of pressure rolls holds the boards straight and feeds them to a set of two or more circular saws.

Clearly, it is necessary that the position of the saws on their shaft must be readily adjustable so that boards may be cut to any desired width. The saw nearest the guide strip is usually stationary, and the guide strip adjustable, so that no more edging need be cut off the adjacent edge of the board than is necessary to square it. The saw that cuts along the far edge of the board, however, can be shifted from side to side by means of a lever or handwheel in front of the feed table. On some machines, the EDGERMAN may have as many as three or four levers, each one adjustable by a scale to fractions of an inch. Sometimes unusually wide boards may be ripped into several boards, particularly if the distribution of defects is such that by so doing clear boards of higher grade may be manufactured. The EDGERMAN must know grades of lumber and be able to determine instantly how to adjust his saws to secure both good width and high grade.

Behind the edger saws, the lumber slides upon a rear edger table. An EDGER TAILER thrusts the edged boards upon transfer chains leading to the trimming saws, or lifts them to the directly adjacent trimming table.

TRIMMING

The rough ends of boards are cut off either with a single circular saw or with a two-saw trimmer, fitted with one stationary saw and one that may be adjusted to suit the length of the

board being trimmed, or with a series of suspended circular saws spaced at two-foot intervals, any one or more of which can be dropped by the TRIMMER MAN to trim any standard length board or to eliminate such defects as can be removed through crosscutting. This operation differs from edging only in that ends instead of edges of boards are trued. When the lumber emerges from the trimmer, the sawmill has completed its work. The lumber must still be sorted, graded, and seasoned. These are the functions of the lumberyard which may be an adjunct to either sawmill or planing mill.

EXCELSIOR MILL

Excelsior, although widely used as a packing material to prevent breakage or other injury to articles during shipment, is not important as an industry, either from the standpoint of the number of establishments or the number of workers employed. According to the Biennial Census of Manufactures for 1935, there were only 48 establishments in the nation employing a total of 831 workers.

The product is made from softwood of little or no commercial value and the process is quite simple. Logs are first cut into standard lengths (bolts) by a LOG CUTTER on a circular sawing machine. The bolts are then inserted one at a time, by an EXCELSIOR-MACHINE OPERATOR, between the feed rollers of a machine that automatically cuts the wood into long shreds by the combined action of a multitoothed steel comb that grooves the surface of the bolts and a knife that shaves the wood off in shreds (excelsior). Since the operation of the

individual machine is relatively simple, it is often the practice to have a single worker tending a battery of excelsior machines.

The freshly shredded excelsior is then spread out over a large area and allowed to dry. After drying, the excelsior is loaded into a baling machine to compress it into compact bales, and the bales are bound, weighed, and shipped to consumers.

LUMBER GRADING AND SEASONING

The ability of the sawyers to raise the grade of lumber by discriminative cutting has been mentioned. In the eyes of the lumbermen, grade has a much more definite meaning than the lumber's relative freedom from faults. Various manufacturers' associations have classified particular kinds of wood into from 4 to 50 grades, each grade based upon the number and size of various defects and blemishes and their positions in a given board. Hardwoods, for example, are graded into firsts, seconds, No. 1 common, No. 2 common, No. 3 common, and culls. Among the recognized blemishes and defects are all types and sizes of knots, pitch streaks, checks, splits, holes, wane, and decay.

A preliminary assorting of lumber occurs after the boards emerge from the trimmer saws. Lumber of like grade and size is stacked and subjected to a process of seasoning either in dry kilns or in the open air. The purpose of the process is to remove a part of the moisture or sap which fills the cells and impregnates the cell walls of freshly manufactured (green) lumber.

As the lumber dries it shrinks and

sometimes warps or changes its shape. If the shrinking or warping were to occur after the lumber was utilized in construction or manufacturing it might cause irreparable damage, but if the wood is properly seasoned beforehand it may be used without the likelihood of its changing size or shape.

Sometimes new defects appear in the lumber during seasoning, particularly if it is not properly stacked, or if the heat and humidity of the kiln is not satisfactorily regulated. Stresses and strains resulting from uneven drying of the wood may cause the fibers to tear apart and result in honeycombed or checked lumber. Variations in shrinkage warps or twists the boards. Discoloration of the lumber may result from such causes as exposure to too great a heat, dampness, or mold. All these defects tend to deteriorate the lumber and often necessitate a regrading. But seasoned lumber, because of its lesser weight, is cheaper to ship than green lumber; and because it can be utilized immediately for construction and for the manufacture of wood products, it is of greater value to industry.

ASSORTING

The division of lots of lumber into groups of like grade may be accomplished entirely by hand as the boards are taken from a pile, car, or truck; or the lumber may be carried along on a conveyor beside which the GRADER works. The GRADER scrutinizes each board and marks its grade and size classification upon it for SORTERS who separate the lumber according to grade and load it for transportation to the dry kilns or yards.

Often there are circular rip and crosscut saws and sometimes a band

resaw adjacent to the SORTERS. Each time the GRADER observes a board that has not been sawed to produce the highest grade consistent with usable size, he routes the board off the sorting table to be recut on these saws.

KILN DRYING

A large part of the lumber manufactured in this country, particularly the softwood lumber, is seasoned in closed kilns, where conditions of temperature and humidity are usually under the complete control of the operator. A few kilns are patterned after smoke-houses and season the wood by subjecting it to the heat and smoke of a fire built under a grate; others are simply furnace-heated sheds without humidity control. Most kilns, however, are heated by steam pipes. Humidity control is effected by circulating a regulated quantity of outside air through the lumber, or by passing a current of air through a steam or water spray before admitting it to the kiln. In order that the hot air of the kiln may circulate past all sides of the boards they are piled in layers, separated by several strips of seasoned wood called stickers.

AIR-SEASONING

An older method of seasoning lumber, still widely practiced on lower grade lumber, is that of stacking the boards in the open air for a period of six weeks to four months. The lumber is piled with great care, to allow air to circulate between the layers. One end of the stack rests upon higher foundations than the other, so that the entire stack tilts slightly and rain water is easily shed. Sometimes a pitched roof is laid upon the top of the

pile, or the lumber is stacked in open sheds to protect it from sun, rain, and snow.

If lumber is seasoned in a yard, it is piled in stacks about 20 feet high. The stacks are arranged in rows with ample space between them for transporting the lumber to and from the yard. As we have seen before, the lumber may be transported by wagon, truck, rail car, or crane.

STORAGE AND INSPECTION

After the lumber has been seasoned it may be shipped or stored. Lower grades are piled in the lumberyard; higher grades in storage sheds. No stickers are required between layers of boards piled for storage purposes.

Even though lumber be carefully graded after sawing, its grade may change during the seasoning process. It sometimes acquires such defects as sap stain, mold, or kiln burn. Before it is shipped or used, therefore, it is graded again by a LUMBER INSPECTOR. He carries a light hickory "turning rule," hooked at one end, which may be used to turn over the boards and to measure their dimensions and defects. Sometimes the inspector is accompanied by a TALLYMAN, who records the grades and board feet of each shipment.

PLANING MILL

The first step in producing an order in a planing mill is performed by a DRAFTSMAN. This worker interprets the customer's desires and expresses them in terms of shop drawings and specifications, which list the materials necessary to manufacture the required articles. From the DRAFTSMAN these plans and information are

routed to a **LAY-OUT MAN** who obtains the listed materials from the **STOCKKEEPER** and marks them with guide lines and reference points, locating and limiting the mortises, tenons, saw cuts, and bored holes. A **FOREMAN** then receives the marked lumber and distributes it to the various workers under his supervision. Such workers may be **MILLMEN** who execute all operations necessary to complete the required part or article, or they may be **RIPSAW OPERATORS**, **BELT SANDERS**, **PLANER OPERATORS**, who, in combination, achieve the same result. For the sake of simplicity, we shall consider each change in product as the exclusive province of a particular worker and not as part of the job of a **MILLMAN**.

Since the products of the planing mill comprise flooring, ceiling, molding, special siding, and manufactured lumber on the one hand, and millwork (staircases, cabinets, sash and doors) on the other, it will be necessary to treat the two divisions separately even though some jobs are common to the production of either class of merchandise.

FLOORING, CEILING, MOLDING AND SIDING PRODUCTION

The seasoned rough lumber for these articles, if it has not been resawed at the sawmill, is carried to a **RESAW OPERATOR** who saws the thick planks and timbers into boards of lesser thickness on a large power-driven band or circular saw. Circular ripaws, under the guidance of a **RIPSAW OPERATOR**, then cut the boards to prescribed width, and the final operation, sawing to length, is performed by a **CUT-OFF-SAW OP-**

ERATOR, using a circular saw which may be suspended upon a pendulum-like support from the ceiling, or mounted beneath the bench on which the lumber is cut. The rough lumber, which has now been sawed to three dimensions, is sent next to the **PLANER OPERATOR**. This worker pushes the boards into the grip of the planer feed rollers, guiding each one as it is conveyed past revolving cutter blades, which deliver it smooth and surfaced on one, two, or four sides to the **PLANER OPERATOR HELPER**, who removes them.

Four-sided planing completes the machine work done on ordinary dressed lumber, except for the incidental tasks of grading and loading the completed stock into freight cars or storage sheds. Flooring, molding, ceiling, and siding, however, must be tongued and grooved or otherwise shaped. To such ends, the **MATCHER OR MOLDER OPERATOR** pushes the already planed lumber into the feed rollers of a matcher or a molder that force it against revolving knives ground to shave it to the desired shape. These knives may cut tongues, grooves, shiplap, or other similar decorative or functional edging upon it.

MILLWORK PRODUCTION

Rough lumber for dimension stock, and sash, doors, and frames receive about the same initial processing as does flooring, siding, molding, and ceiling, insofar as the large timbers are sawed to uniform length on a cut-off saw and then routed to the **RESAW OPERATOR** for reduction into planks of lesser thickness. From the resaw, the boards go to a **GLUE-**

JOINTER OPERATOR who feeds them into a semiautomatic machine designed to plane, tongue, and groove lumber preparatory to gluing it into units of larger area. The **GLUE-MEN** perform the latter operation, warming the boards in an oven, applying the glue to the board edges, and then clamping the assembled boards into a press until the glue has set or hardened.

At this point the prepared lumber undergoes specialized treatment, depending upon whether it is to be made into dimension stock for the manufacture of staircases, kitchen cabinets, or other standard articles.

Sash and door fabrication.—Sawed to length and width and surfaced on two sides, the rails, bars, and muntins of the sash stock are trucked to the **TENON-MACHINE OPERATOR** for the shaping of tenons, rectangular projections made by proportionately cutting away the wood from each of their ends. The worker clamps the stock in position on the machine table and then pushes it past two vertical, rotary cutters that shape the tenon shoulder, and finally against two or more horizontal cutters and saw that shape the tenon tongue. Stiles, instead of being tenoned, are mortised (bored with rectangular holes) to receive the tenoned ends of the bars, rails, and muntins. This work is done by a **CHAIN MORTISE-MACHINE OPERATOR** or a **HOLLOW-CHISEL MORTISE-MACHINE OPERATOR**. the wood being clamped on a work table and then brought into contact with a rapidly rotating chain saw or with a tool that bores a cylindrical hole and chisels it square in one operation.

The next step in the process is one of cutting the still rectangular stock into the ornamental shapes usually seen on sash. **STICKER OPERATORS** hold each piece firmly against the guides of the sticker, push it between the machine feed rollers, and remove it from the discharge end after rotating cutters have shaped the wood. Finally the worker cuts a groove to provide clearance for sash cords, and bores a hole to accommodate sash-cord knots in the stiles, by pushing them over the cutter and drill of a plow and boring attachment on the sticker. The sash stock, stiles, rails, bars, and muntins are now ready for assembling.

Door stock, since it is composed of similar members—stiles and rails—is largely manufactured on the same machines as those used for sash. The principal exception comes in the machining of panels, which occupy relatively the same position in the doors that glass does in sash. Double surfaced boards of proper dimensions are held by the **PANEL-RAISER OPERATOR** against the rotating cutters of the machine. These cutters, since they bevel only one edge at a time, require that the worker turn the panel over and feed it past the cutters in four different positions until all four edges have been similarly shaped.

Door and window frame fabrication.—Window and doorframe stock is machined in the same general way as that just described for sash and doors. This involves ripping to width, shaping on a four-sided planer or molder, and finally cutting to length. In most instances, the additional operation of dadoing (grooving), which is per-

formed by a **VARIETY-SAW OPERATOR**, concludes doorframe processing, but window frame jambs (the long members) require the mortising of pulley pockets and the sawing out of pocket covers to provide for the counterweight and cord that make it possible to raise the sash and leave it open without a prop. The first of these operations, cutting the pulley openings, is performed by a **PULLEY-MORTISE-MACHINE OPERATOR** who cuts the oval pulley openings in the jambs by use of a specialized machine equipped with a power-rotated routing bit. Properly manipulated, this bit first cuts through the jamb making a mortise of desired length, and then, withdrawn a little, makes another oval mortise around the first, but only an eighth-inch deep.

A **POCKET CUTTER OPERATOR** then saws the special openings in the jambs through which the sash weights can be reached on a pocket cutter. This machine uses two circular ripaws and two pairs of small, reciprocating saws, which leave a thin surface of wood between the respective saw cuts. A hammer blow later frees the cover for fastening to the jamb by wood screws.

The manufacture of dimension stock (lumber cut and sawed to shape for subsequent assembly into such articles as breakfast nooks, arbors, and staircases) requires the same preliminary operations as does that of sash and door stock. The wood is sawed to length and width, and frequently tongued and grooved, glued together, and finally, after the glue has set, smoothly surfaced on two sides.

In this form the stock may go to any one of a number of machines,

depending on what further processing is required. Holes of regular shape are bored by **HORIZONTAL, MULTIPLE-SPINDLE, or VERTICAL BORING-MACHINE OPERATORS**. Once the part is clamped on the table of either machine, movement of a pedal or lever brings the stock into contact with rotating bits, or forces the bits into the stock, boring round holes. Elliptical or irregular holes are cut on a router which is essentially an adaptation of the boring machine. The stock, placed on a work table, is elevated by the **ROUTER OPERATOR** until it engages a vertical, side-cutting bit, which gouges out wood as the stock is moved about on the machine table under it.

Similar methods are employed by the **SHAPER OPERATOR** in producing designs as fluting, grooving, or rabbeting on the external edges of irregularly shaped objects. On this machine however, the vertical side-cutting bit is replaced by a cutter head projecting through the machine table. Shaping is accomplished by manipulation of the stock against the cutter head, using metal guides clamped to the machine table or a pin projecting from the table to steady and help guide it.

Frequently the stock is mitered, beveled, or grooved, work of this sort being done on a power-driven circular saw by **VARIETY-SAW OPERATORS**. Other, more irregular types of sawing are usually accomplished on jigsaws or band scroll saws. Their attendants, **JIGSAW OPERATORS** and **BAND SCROLL-SAW OPERATORS**, draw or trace the required outline on the wood to be cut, then nail several pieces together in a pile for

simultaneous sawing. Jigsaws, since they are customarily used to follow lines not extending to the edges of the wood, require the additional preliminary operation of boring a hole in the stock through which the saw blade can be inserted. Sawing with either saw is performed in much the same way: the operator slides the stock over the saw table, pressing and turning it against the blade while following the penciled outline.

Sandpapering.—In this final machine operation rough finished work is either pressed by hand or automatically fed against rotating disks, belts, or spindles to sand its surfaces. Large flat surfaces, such as doors, bench sides or seats, and table tops, are usually sandpapered on drum sanders, in which pressure or feed rollers convey the stock over the sanding drums. Manually fed combination sanders using power-rotated abrasive disks, drums and spindles, achieve the same results on surfaces of smaller area. FLEXIBLE-ARM SANDER OPERATORS are sometimes employed for smoothing flat surfaces and sanding doors or window frames by movement of a post-suspended, vertically rotating, abrasive disk over the surfaces of the wood.

Panels and other surfaces which are not in one plane usually receive their finishing on BELT SANDERS. The operator of this machine forces the revolving abrasive belt against the wood surface by pressing upon the belt with a wooden block held in one hand.

Assembly.—The fabrication of cut and shaped pieces into completed articles is usually done by a CABINETMAKER who fastens the joints together with nails, screws or glue,

putties cracks or holes, and gives each article a finished appearance.

Sash, door, and frame stock receives about the same treatment at the hands of a SASH, DOOR, AND FRAME ASSEMBLER. This worker fits together the individual pieces, squares the whole assembly in a large, hand-operated clamp and nails it together permanently.

Final assembly operations are performed by GLAZIERS and WIRE SCREEN INSTALLERS, the latter cutting roll screen to size and then tacking it on the assembled frames.

WOOD CARVING AND TURNING

WOOD CARVING

At present, in the carving of wooden articles, three related but distinct types of production work are found: the tasks of the HAND WOOD-CARVER that require great skill but call for only moderate unit output; those of the SPINDLE WOOD-CARVER that demand about the same skill but call for higher output; and those of the AUTOMATIC CARVING-MACHINE OPERATOR that require little skill but great productivity. Among the jobs themselves, factors other than skill and output tie each rather closely to the others. Drawing full-sized sketches and transferring them to the wooden surfaces, where they serve as a guide in carving may be required of both SPINDLE WOOD-CARVERS and HAND WOOD-CARVERS. In single-spindle carving the stock is held between the hands and forced against a rotating carving bit. Since the machine can accommodate carving bits of

various sizes and shapes the path cut in the wood is almost identical with that made by manually employed gouges and chisels. Further development of the single-spindle carving principle into a multiple-spindle mechanism has created a carving job with quite different skill requirements. The tasks of SPINDLE WOOD-CARVERS and AUTOMATIC CARVING-MACHINE OPERATORS are related principally in that both achieve the same change in product. The job of an AUTOMATIC CARVING-MACHINE OPERATOR, however, consists essentially of guiding a metal finger over the surface of a model of the desired shape. The machine does the rest; for each movement of the metal finger, a synchronized spindle cutter makes a proportionate furrow on the wooden blank. The other duties entail clamping the various cutters into the spindles and placement of the wooden blanks in the correct position on the machine for cutting. For the most part industrial wood carving has developed from hand artistry to include mechanically assisted artistry, and finally to the rather wide use of hand carved work as models for the semiautomatic manufacture of several carvings simultaneously.

TURNED WOODEN ARTICLE PRODUCTION

The same shift of emphasis from hand to semiautomatic machine work has also developed in the shaping of turned wooden articles. WOOD TURNERS still shape the more unusual or difficult pieces by hand, clamping the stock in woodworking lathes and cutting it to shape with chisels, or similar hand tools, pressed against its rotated surfaces. How-

ever, the majority of turned articles, because of their standardized shapes, can be more profitably manufactured on semiautomatic machines. Such work is usually done by SWING-TYPE LATHE OPERATORS and VARIETY-LATHE OPERATORS. Frequently the machine set-up, owing to its difficulty, may fall within the jurisdiction of the FOREMAN; or a special WOODWORKING-MACHINERY SET-UP MAN may be employed. Such practice eliminates the most difficult part of the process and makes possible a ready job interchangeability.

Once set up, neither machine requires much of its operator beyond feeding the cutter knives into the article blank, or the blank against the knives, at speeds slow enough to eliminate shattering of the wood. Swing-type lathes, especially adapted for the production of baseball bats, implement handles, or table legs, "swing" the rotating stock into contact with a battery of saw-like cutters. These chip away the wood to previously determined depths.

Action of the variety lathe is just the reverse; the stock rotates on a fixed axis and the appropriately shaped cutters are advanced into contact mechanically to perform the required shaping. The first cutter cuts the stock to circumference small enough for exact passage through a guide ring. As soon as the stock protrudes a predetermined distance through the guide ring a forming knife swings up and cuts the wood to a shape the opposite of its own. A cut-off knife then severs the completed article from the remaining, unshaped stock and the operation is repeated. Spools

are processed differently from such articles as knobs and handles in that before being severed they are drilled lengthwise through the center by a bit installed on the machine.

Implement handles which are made on rounding machines or variety lathes are usually tapered at one end to fit their tool sockets. The tapering may be done manually, although it is generally accomplished by CHUCKING-MACHINE OPERATORS who place the stock in guide troughs and then feed it into hollow, cylindrical cutter heads by hand or by manipulating levers or hand-wheels. Once in the cutter head, rotating, inwardly projecting knives shave away the wood until the desired taper is attained.

The rounding machine, specially adapted for the making of wooden rods or dowels, is of similar construction, but the stock, placed in a guide trough by the ROUNDING-MACHINE OPERATOR, passes complete through the cutter head, not just a limited distance into it. Also, the cutting knives of the rounding machines are set to produce a cylinder of uniform cross section, rather than a short taper.

SANDING

Shaping is followed in most plants by a finishing process in which rough surfaces are smoothed with sandpaper. This work may be done either by sandpapering the surfaces manually, or by bringing them into contact with power-rotated disks, spindles, or ribbons of the same abrasive.

PAINTING

Painting, the final stage of manufacture, is apportioned between two

workers, a DIPPER and a MOUNTER. The DIPPER, as his name implies, dips implement handles, baseball bats, tenpins, and other articles into vats of paint, either piece-by-piece or in groups.

Whenever small, irregularly shaped objects (paint-brush handles or door stops) are to be dipped, the MOUNTER affixes them to a nail-studded mounting board. By this device it is possible for the DIPPER to dip all the articles on a given board instead of immersing them individually.

To summarize, the manufacture of carved and turned wooden articles is becoming less and less the province of skilled workers. Instead, low-skilled or semiskilled machine operators working under the skilled supervision of a FOREMAN and with the technical assistance of a WOOD-WORKING-MACHINERY SET-UP MAN perform an increasing proportion of what until recently was regarded as the work of skilled personnel.

MAINTENANCE OF KNIVES AND SAWS

The wear on the band circular saws used in lumber manufacturing is so great that they have to be reshaped and filed at frequent intervals. A band head saw, for example, requires refiling after every few hours of use.

In portable sawmills the blades may be filed manually by one of the sawyers. In permanent mills, however, a skilled SAW FILER, sometimes aided by one or two assistants, is in charge of reconditioning the saws. This work is done with hand files or by use of semiautomatic, power-driven ma-

chines that sharpen the teeth on a grinding wheel. To compensate for another operating defect, the change of shape produced by rapid rotation, the SAW FILER stretches (tensions) a part of each saw by passing it between the two small rollers of a tensioning machine, which exert enough pressure upon the steel to stretch it slightly. Circular saws are tensioned

near the center; band saws along a line a little back from the toothed edge. The saws and cutter knives of planing mills and other woodworking plants are similarly sharpened by SAW FILERS or KNIFE GRINDERS who use hand files, portable grinding wheels, or semiautomatic machinery to produce a cutting edge of proper keenness.

BIBLIOGRAPHY

In this bibliography is presented a list of publications which is of value as a source of information concerning occupations in the industry. No attempt has been made to compile an exhaustive bibliography for all phases of the industry.

Books

FOREST PRODUCTS, THEIR MANUFACTURE AND USE, by M. C. Brown, New York, John Wiley and Sons, Inc., 1919; principal commercial features in the production, manufacture, and utilization of the most important forest products other than lumber.

GENERAL SHOP WOODWORKING, by Fryklund and La Berge, Bloomington, Ill., McKnight & McKnight, 1936; manual of instruction for use in Junior High School.

KILN DRYING OF LUMBER, by Koehler and Thelen, New York, McGraw-Hill Book Co., Inc.; practical text on seasoning of lumber by artificial means.

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SAWMILL WORK AND PRACTICE, by W. J. Blackmure, London, 1909; text for owners, overseers, and operators of woodworking machinery.

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THE ORGANIZATION OF THE LUMBER INDUSTRY, by Wilson Compton, Chicago, American Lumberman, 1916; complete coverage of the industry from virtually all angles.

TIMBER PRODUCTS AND INDUSTRIES, by M. C. Brown, New York, John Wiley and Sons, Inc., 1937; text on the harvesting, conversion, and marketing of materials other than lumber, including the principal derivatives and extractives.

WOOD-TURNING, by Resides and Dreiner, New York, McGraw-Hill Book Co., 1911; a text for schools and colleges and for apprenticeship courses.

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PAMPHLETS

A BOILERLESS KILN FOR PORTABLE MILLS, by C. J. Telford, U. S. Department of Agriculture, Forest Products Laboratory, 1933.

ACCOUNTING-SINGLE LOGGING CHANCE AS A UNIT, by C. J. Telford, U. S. Department of Agriculture, Forest Products Laboratory, 1931.

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ington, Industry studies section, Division of Review, 1936.

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MIGRATION OF THE LUMBER INDUSTRY, by Marion Hayes, New York, Works Progress Administration, special Research Section, 1937.

OPERATING SMALL MILLS, METHODS, BIBLIOGRAPHY AND SOURCES OF EQUIPMENT, by C. J. Telford, U. S. Department of Agriculture, Forest Products Laboratory.

SOME FIGURES ON PROFITABLE IMPROVEMENTS AMONG SMALL SOUTHERN PINE MILLS, by C. J. Telford, U. S. Department of Agriculture, Forest Products Laboratory, 1933.

WAGES AND HOURS IN THE LUMBER INDUSTRY IN THE UNITED STATES, Bureau of Labor Statistics, U. S. Department of Labor, 1930 and 1932.

OUTLINE OF THE JOB DESCRIPTION

I. Job Titles

The job titles shown at the top of the descriptions are those commonly found in the industry. Other titles may be found in various localities and should be added by the local office staffs.

II. Branch—Department

The job descriptions have been grouped under these headings to facilitate reference to the material. While some of these subdivisions would be found in a typical establishment, others have been set up to bring together similar or related jobs or to prevent repetition of identical jobs that appear in several parts of the establishment.

III. Job Summary

This division is intended to give a brief, concise sketch of the job as a whole. It does not show the details of the job.

IV. Work Performed

A detailed statement of the actual duties performed on the job is shown in this division.

Inasmuch as the combinations of duties found in each job vary in different establishments and in different localities, the lists of duties in these descriptions represent composite pictures rather than exact descriptions of each job. While each description represents an accurate general picture of the job, the local office should adapt the information to its own specific requirements by supplementing and revising the material.

V. Equipment—Material

These divisions present a brief, general, and nontechnical description of the machines, tools, equipment, and materials used by the worker that require an explanation.

VI. Working Conditions

Statements in this division indicate usual working surroundings and hazards that are incident to the particular occupation.

VII. Relation to Other Jobs

Information on possible promotional sequences and transferability appears in this division, together with notations of the usual manner in which the duties may be redistributed under other occupational titles, or may be combined with other duties.

VIII. Specialized Qualifications

This division states briefly the qualifications generally found necessary in applicants for satisfactory performance on the job. This material is intended to represent some minimum qualifications to be thought of when classifying applicants, but it is never to be considered as a substitute for the specific employment qualifications which must be obtained from every employer when requests for workers are received.

IX. Special Information

This division represents the more common variations in the job on which specific information should be obtained from the applicant. It augments, but does not supplant, the information called for on the employer-order form and the registration form.

JOB DESCRIPTIONS
FOR THE
LUMBER AND LUMBER PRODUCTS
INDUSTRIES

ORGANIZATION OF THE JOB DESCRIPTIONS

The Job Descriptions in this book might have been organized for presentation according to any one of a number of different schemes. One of the simplest would be the arrangement of the Job Descriptions in alphabetical order according to title. Such an arrangement, of course, could not bring out any of the relationships between groups of jobs. Another plan might present the Job Descriptions, departmentalized, according to actual departments such as are found in establishments surveyed. After consideration, this plan was discarded because it was felt that the interests of clarity and usefulness in employment work would be better served by arranging the Job Descriptions according to the functional rather than positional relationships found to exist between the jobs.

With this treatment, the jobs described lend themselves to arrangement in the following ten groups:

The Sawmill Jobs which are those found in the conversion of logs to rough lumber.

The Grading and Seasoning Jobs which relate primarily to lumber inspection.

The Lumber Moving Jobs which embrace primarily the operation of conveyances to move lumber.

The Planning and Regulating Jobs which are charged with the re-

sponsibility for planning and directing the work of others.

The Craft Jobs which require skilled workers, competent to execute any or all of the tasks embraced by their individual trades.

The Woodworking Machine Jobs which require moderate skills for the operation of the machinery with which the major portion of the production is accomplished.

The Assembling and Finishing Jobs which are concerned with the semiskilled manual work of assembling, smoothing, and painting wooden articles.

The Machine Operator Helpers which is a group of workers performing relatively simple tasks to assist the machine operators.

The Maintenance Jobs which are performed to keep plant and equipment in efficient operating condition.

The Laboring Jobs which all require similar low-skilled qualifications and are found throughout the industry wherever they are required to facilitate the work of others.

Each of these job groups is presented as a unit following a short, individual introductory section devoted to employment information concerning the group.

When considered according to the types of work they embrace, certain of these job groups are closely associated and may be considered together as constituents of major divi-

sions of work. Thus, the ten job groups have been assigned according to their places in the scheme of production to six divisions as follows:

SAWMILL

THE SAWMILL JOBS

LUMBER SELECTION AND STORAGE

THE GRADING AND SEASONING JOBS

THE LUMBER MOVING JOBS

PLANNING AND REGULATING

THE PLANNING AND REGULATING JOBS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

THE WOODWORKING MACHINE JOBS

THE ASSEMBLING AND FINISHING JOBS

THE MACHINE OPERATOR HELPER JOBS

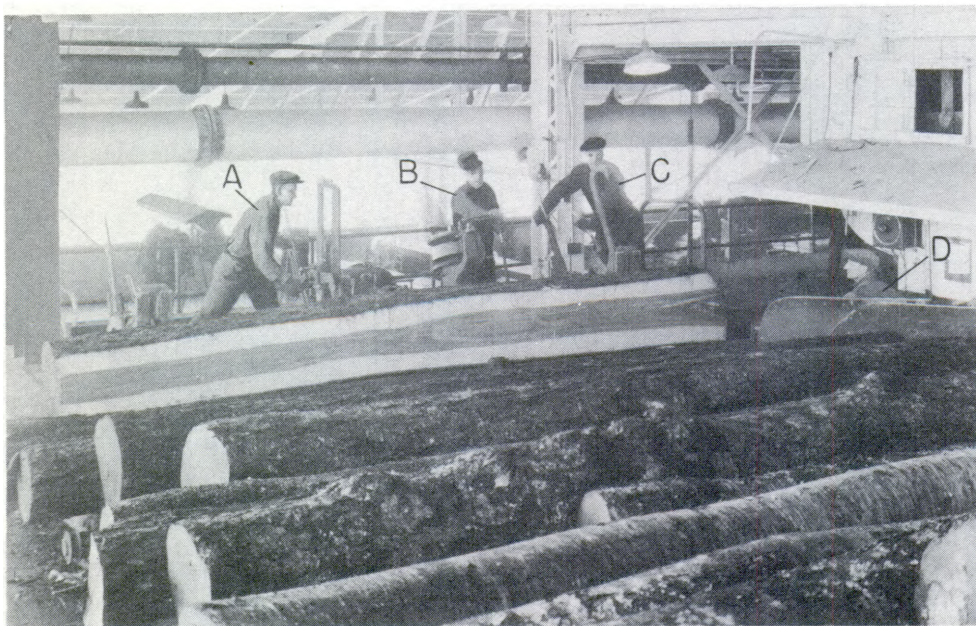
MAINTENANCE

THE MAINTENANCE JOBS

GENERAL LABOR

THE LABORING JOBS

HEAD-SAW CREW



A. DOGGER.
B. BLOCK SETTER.
C. DOGGER.
D. HEAD-SAW OPERATOR.

THE SAWMILL JOBS

INTRODUCTION

These jobs form a closely related group engaged in the conversion of logs into rough lumber, which is the raw material of subsequent processing and fabricating operations.

Although they execute the first step in the manufacture of wooden articles, these workers are not closely related to other woodworking jobs, but form a closely knit entity in themselves. Because of the difficulty and expense of transporting logs, the sawmill is frequently located close to the site of logging operations, while the planing mill or wooden article manufacturing plant will, most likely, occupy an urban location, convenient to transportation facilities, cheap power, and a labor market. Hence, sawmill jobs may more readily be filled from the ranks of agricultural workers or, better still, from among the LOGGERS rather than by transfer of workers from planing mills or wooden article factories.

With the exception of the HEAD-SAW OPERATOR, who must be a highly skilled worker with an intimate knowledge of the efficient utilization of logs for lumber, and who also acts as a leader or foreman, this group is substantially a crew of semiskilled workers who function in such close cooperation that the various tasks are readily assigned to different jobs as production requirements demand.

Because of the heavy materials handled, the high degree of speed and teamwork required, and the dangerous nature of the machinery, workers with sawmill experience are preferred for even the least-skilled of these jobs. The more general requirements for employment are skill in handling logs and heavy timbers and ability to work rapidly and efficiently in cooperation with other members of a crew.

JOB DESCRIPTIONS

BLOCK SETTER

DECK MAN

DOGGER

EDGER MAN

HEAD-SAW OFF-BEARER

HEAD-SAW OPERATOR

LOG SCALER

LOG TURNER

TRIMMER MAN

TRIPPER

LOG CARRIAGE

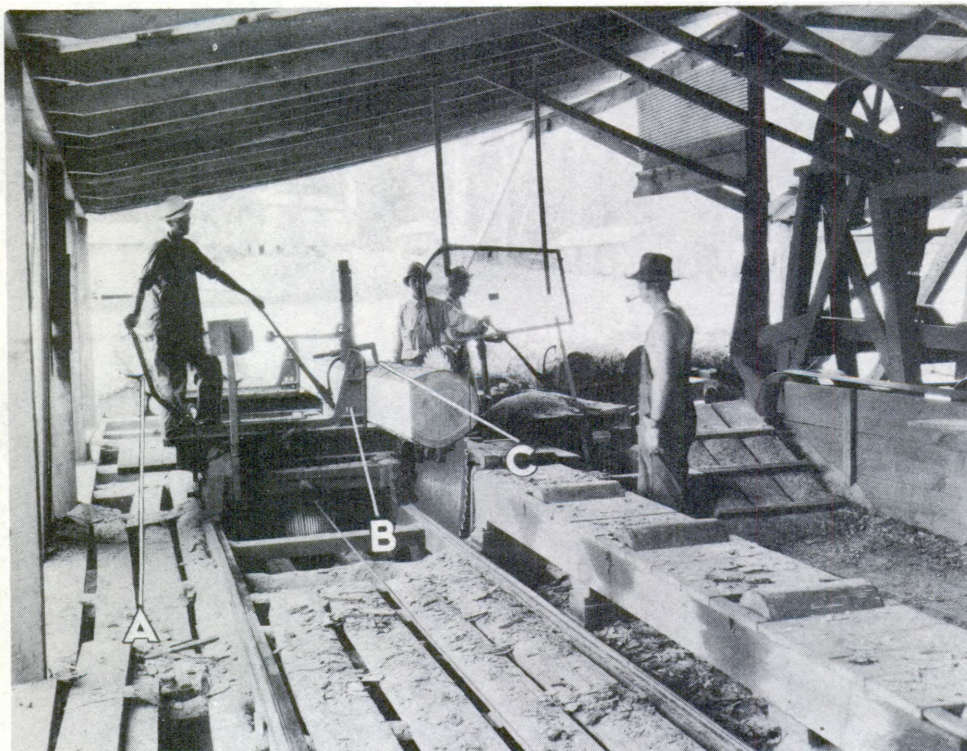


Photo by U. S. Forest Service

- A. BLOCK CONTROL LEVER.
- B. BLOCK.
- C. DOG.

BLOCK SETTER
BLOCK PLACER
HEAD BLOCK-SETTER
RATCHET SETTER
SETTER

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Controls mechanism that adjusts position of logs on a log carriage so that planks of desired thickness are cut off as the carriage passes a saw. Moves levers in response to signals or orders from HEAD-SAW OPERATOR to recede carriage blocks, making room for a fresh log on carriage; to adjust carriage blocks individually, bringing crooked or tapering logs into position approximately parallel to line of carriage travel; and to advance log into line with saw a sufficient distance for cutting off a plank of desired thickness. Works as a member of a crew that operates the head saw in a sawmill.

In different establishments the tasks of this job vary with the degree of mechanization of the log carriage, the size of the equipment, and the kind and value of the logs sawed.

Equipment

Log Carriage: A strongly constructed car for carrying logs past the head saw which cuts off a plank or slab at each passage. By means of sharp-toothed dogs, the log is firmly clamped to movable supports that are advanced to move the log over the edge of carriage for each cut.

Working Conditions

Rides on carriage and is subject to loud, monotonous noise from saw, flying sawdust, and wood chips.

The worker is in danger of injury from falling off carriage or accidental contact with saw blade.

Relation to Other Jobs

Promotion from: DOGGER; HEAD-SAW OFF-BEARER; SAWMILL LABORER.

Promotion to: HEAD-SAW OPERATOR.

Transfer from and to: TRIMMER MAN.

Other relationships: The duties of DOGGER may be added to this job.

Specialized Qualifications

General sawmill experience required.

Speed and precision in setting position of logs required, because this worker helps set the pace of the sawmill, and his carelessness or incompetence may cause serious injury to himself and members of the crew.

Experience as DOGGER desirable.

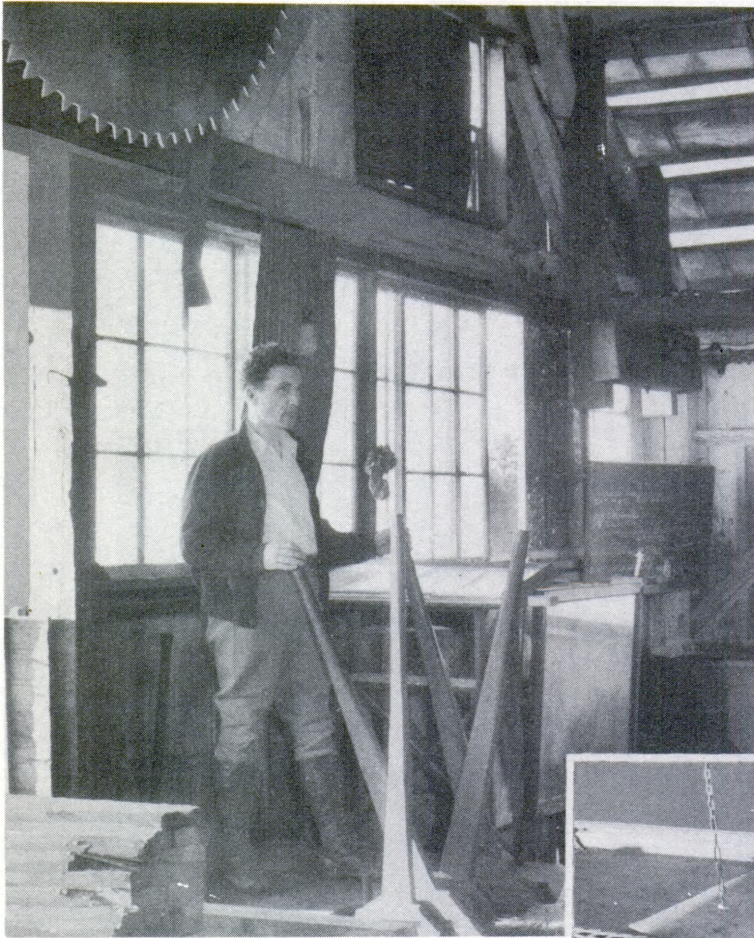
Husky worker desirable to move levers and to withstand the constant jerking motion of the carriage as it moves back and forth.

Special Information

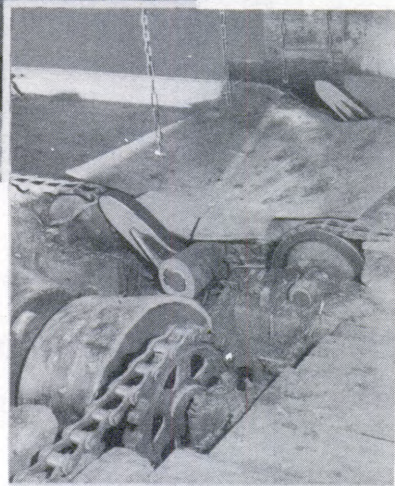
Determine: Method for operating blocks and dogs (hand, air, steam, or electricity).

Kind of logs cut. (Hardwood is usually more valuable than softwood and therefore requires more competent workers.)

DECK MAN AT CONTROLS OF LOG CONVEYOR



DETAIL OF STEAM KICKER THAT
REMOVES LOGS FROM CONVEYOR



DECK MAN
LOG DECK MAN
LOG HANDLER
RAMPMAN
SAWMILL-DECK LABORER

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Arranges logs in convenient order on sawmill log deck for accessibility to carriage of head saw, working as a member of the head-saw crew.

Work Performed

1. Either rolls logs from conveyor, tram car, or motor truck into position, using a cant hook; or
2. Guides loads of logs being moved by crane or derrick, and releases lashings from logs after they are lowered to the deck, using a cant hook to roll logs into exact position.
3. May either control a switch to start and stop conveyor that carries logs to deck; or
4. May actuate levers and pedals to operate a power winch and cables, to haul tram car and logs to log deck, or to move logs about on deck.

Working Conditions

Is subject to loud, monotonous noise of head saw and flying sawdust. The worker is in danger of being struck or crushed by rolling logs.

Relation to Other Jobs

Promotion from: SAWMILL LABORER.

Promotion to: DOGGER; LOG SCALER.

Transfer from and to: LOG TURNER.

Other relationships: The duties of SLINGMAN or LOG TURNER may be added to this job.

Specialized Qualifications

Strong active worker required in order to move logs quickly without losing control of them and injuring himself or other workers.

General sawmill experience desirable.

Special Information

Determine: Type of equipment used to transport logs to the deck, such as bull-chain conveyor, tram car, or winch.

Approximate size and kind of logs handled.

DOGGER CARRIAGE RIDER

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Working with other DOGGERS on head-saw carriage, raises and lowers by a lever or pedal one of the dogs (clamping device on each carriage block), which hold the log firmly against block and on carriage as the log is cut into planks or timbers by the head saw. On some head-saw carriages may also move an additional lever or pedal to adjust the block horizontally to conform to irregularities in a log, as directed by BLOCK SETTER.

Equipment

Log carriage: A strongly constructed car for carrying logs past the head saw which cuts off a portion of the log at each passage. By means of dogs, the log is firmly held to blocks that are advanced to move the log over the edge of carriage for each cut.

Working Conditions

Rides on carriage and is subject to loud, monotonous noise from saw, flying sawdust, and wood chips.

Worker is in danger of injury from falling off carriage or accidental contact with saw blade.

Relation to Other Jobs

Promotion from: DECK MAN; HEAD-SAW OFF-BEARER; LOG TURNER; TRIPPER.

Promotion to: BLOCK SETTER.

Transfer from and to: TRIPPER.

Other relationships: Operation of the dog nearest the saw may be performed by the BLOCK SETTER.

This job may be added to the usual duties of BLOCK SETTER in sawmills where highly mechanized equipment makes it possible for one man to perform both jobs.

Specialized Qualifications

General sawmill experience required.

A more experienced and dependable worker is required for hardwood sawmills, where the logs must be turned frequently and carefully, than for softwood sawmills, where the logs may be sawed without shifting their position on the carriage.

Husky worker desirable to move levers and to withstand the constant jerking motion of the carriage as it moves back and forth.

Special Information

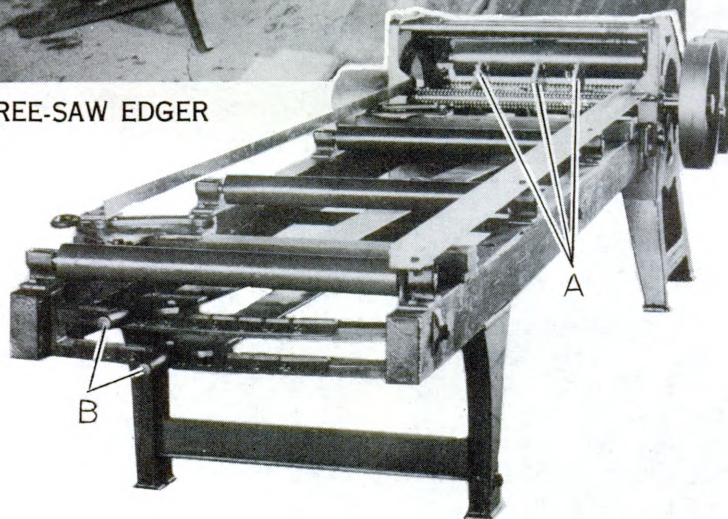
Determine: Size and type of log carriage used.

Kind of logs cut. (Hardwood is usually more valuable than softwood and therefore requires more competent workers.)

FEEDING LUMBER INTO AN EDGER



THREE-SAW EDGER



A. CIRCULAR SAWS.
B. LEVERS BY WHICH SAW SPACING IS ADJUSTED.

EDGER MAN
EDGER FEEDER
EDGER OPERATOR
EDGING-MACHINE OPERATOR

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Rapidly adjusts spacing of the several saws of an edging machine in order to obtain the maximum number of standard width, quality boards from each plank; feeds the planks, usually with the help of an EDGER TAILER, into the feed rollers that grasp and carry it through machine; and raises or lowers by handwheel the feed rollers to accommodate planks of different thicknesses. The continual, accurate adjustment of the saws (required for almost every plank) is the distinguishing element of this job.

May replace dull blades with sharpened ones, or assist SAW FILER in sharpening, setting, and replacing saw blades. May act as a relief worker for BLOCK SETTER, DOGGER, or HEAD-SAW OPERATOR during their temporary absences from posts.

Equipment

Edger: A machine for automatically ripsawing boards to standard widths. It consists of a long table, two or more power-rotated circular saws so mounted that they can be moved toward each other or apart to saw boards of desired widths, and several feed rollers that automatically feed the boards to the saws. Both saws and rollers can be adjusted without stopping the machine.

Working Conditions

Works in a sawdust-laden atmosphere that is noisy from operation of saw.

Subject to injury by flying chips of wood or falling boards.

Relation to Other Jobs

Promotion from: EDGER TAILER; TRIMMER MAN; TRIPPER.

Promotion to: GRADER.

Transfer from and to: RIPSAW OPERATOR.

Other relationships: The duties of TRIPPER may be added to this job.

Specialized Qualifications

General sawmill experience required.

Operating experience with any machine, preferably sawing, required.

Ability to grade lumber roughly and to utilize imperfect planks advantageously is desirable.

Special Information

Determine: Whether worker will grade lumber during sawing.

Number of saws edger contains.

Whether this worker will sharpen and set edger saws.

Whether this worker will occasionally operate log carriage or head saw.

HEAD-SAW OFF-BEARER HEAD-SAW TAILER

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Catches each plank with a box hook as it is cut from log by head saw and guides its fall onto roller conveyor or cart, occasionally cutting incompletely severed planks from log with an ax; works as a member of the head saw crew. May roughly sort planks, in small or portable sawmills not equipped with conveyor.

Working Conditions

Works in sawdust-laden atmosphere that is noisy from the operation of saw. Subject to injury by falling boards.

Relation to Other Jobs

Promotion from: SAWMILL LABORER.

Promotion to: BLOCK SETTER; DOGGER; TRIPPER.

Transfer from and to: LOG TURNER.

Other relationships: The duties of TRIPPER may be added to this job.

Specialized Qualifications

General sawmill experience required.

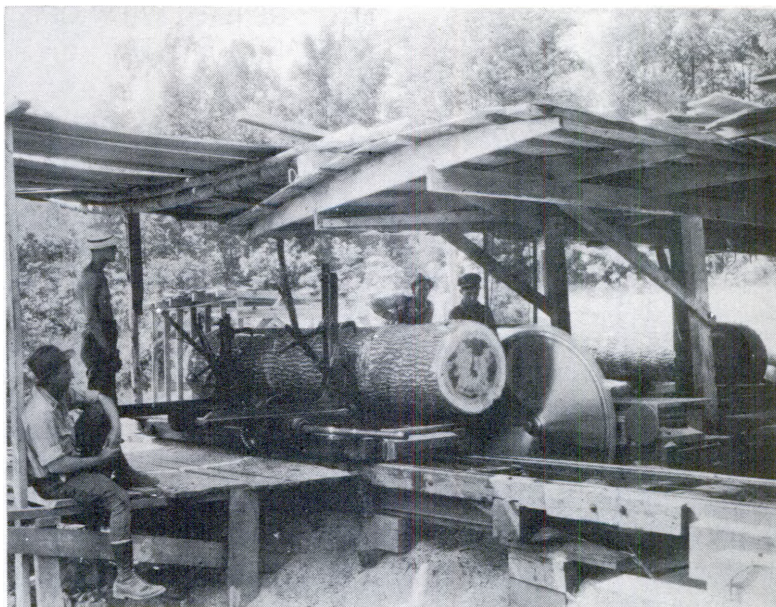
Strong and agile worker desirable to handle the lumber without holding up production or causing accidents that might injure workers or damage equipment.

In sawmills where no TRIPPER is employed this worker must have the knowledge and experience to sort planks roughly as they are cut.

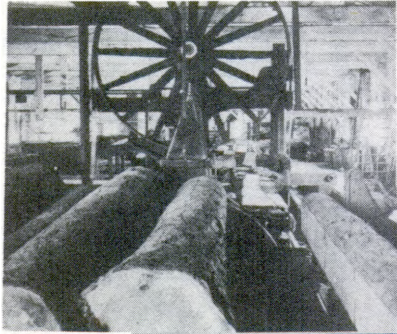
Special Information

If worker is employed at portable sawmill, he will be required to work in rural areas and move from place to place.

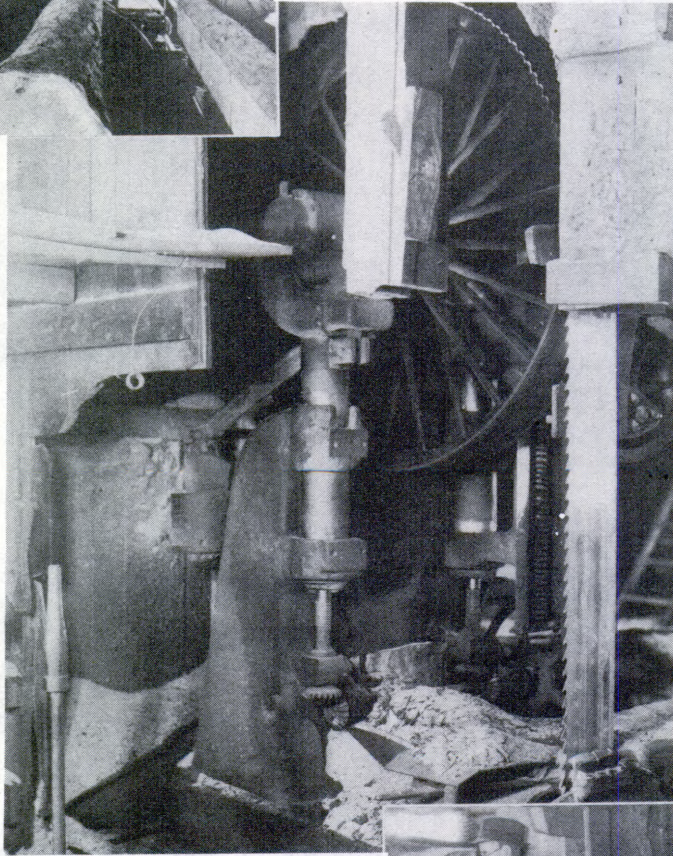
CIRCULAR HEAD-SAW



HEAD-SAW OPERATOR AT THE CONTROLS
OF A PORTABLE CIRCULAR HEAD-SAW



LEFT: GENERAL VIEW OF
BAND HEAD-SAW



ABOVE: CLOSE-UP OF SAW

RIGHT: HEAD-SAW OPERATOR
AT CARRIAGE CONTROLS



Band-Head-Saw Operator 4-31.110
 Also covers: Circular-Head-Saw Operator 4-31.120

HEAD-SAW OPERATOR
HEAD SAWYER
SPLIT-SAW SAWYER

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Supervises and directs the activities of the sawmill crew, and manipulates levers to coordinate head saw and log carriage which cut logs into rough lumber; changes or directs the change of broken and dull saw blades; and where such mechanism is installed, operates by lever a steam-nigger which turns logs over on carriage.

This worker is responsible for the efficient performance of all sawmill work and for maintaining high rates of production consistent with a minimum waste of lumber and the safety of the sawmill crew.

Equipment

Band head-saw: A heavy, toothed, steel band that revolves around two large pulley wheels and which, with the log carriage, reduces heavy timber to rough planks.

Circular head-saw: A large, toothed, sawing disk mounted upon a power-driven shaft and used with a log carriage to reduce heavy timber to rough planks.

Log carriage: A strongly constructed car for carrying logs past the head saw which cuts off a plank or slab at each passage. The log is clamped by sharp-toothed dogs to movable supports that are advanced to push the log toward the saw an appropriate distance for each new cut.

Steam-nigger: A mechanism, built into the log deck and carriage equipment, that turns logs over on the carriage when carriage is opposite deck. One or more arms project from floor and force up the edge of log that is extending over side of carriage with a quick movement that flips the log over.

Working Conditions

Stands or sits on a platform or in a control room near the head saw and is subject to loud, monotonous noise and to flying sawdust.

Worker is in danger of injury from flying pieces of a broken saw blade.

Relation to Other Jobs

Promotion from: **BLOCK SETTER.**

Promotion to: **SUPERINTENDENT.**

Other relationships: This job is usually specialized and entitled CIRCULAR HEAD-SAW OPERATOR, BAND HEAD-SAW OPERATOR, or CLAPBOARD SAWYER, according to type of saw used or the product into which logs are sawed.

The duties of LOG TURNER and SAW FILER may be added to this job.

Specialized Qualifications

Working experience required on log carriage or around head saw to acquire proficiency and speed, because this job sets the sawmill pace and a careless or incompetent worker may cause serious injury to members of the crew or damage to costly equipment.

Must have a broad knowledge of the workability of many varieties of wood and accepted methods of converting logs of each kind to lumber of high grade with a minimum of waste.

Ability to supervise and coordinate the work of the sawmill crew required. Generally BAND HEAD-SAW OPERATORS are more skillful than CIRCULAR HEAD-SAW OPERATORS because they saw the more expensive woods to obtain lumber of pleasing grain structure and high quality.

Special Information

Head saws are of the circular and band type. The circular head saw is used principally for cutting softwood lumber rapidly and does not usually require as highly skilled an operator as does the band head saw which is most often used for cutting valuable hardwood lumber and which is less sturdy and more difficult to adjust.

Determine: Type of head saw to be operated.

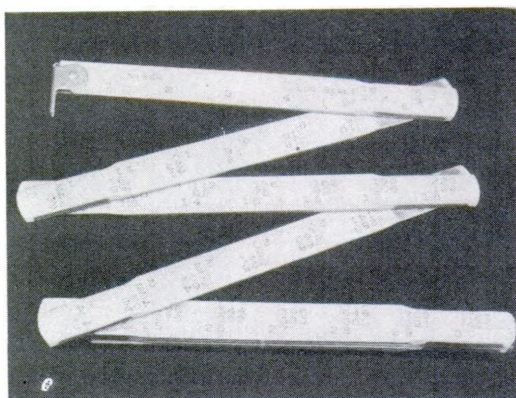
Kinds of wood to be sawed.

Whether sawing rig is portable or semiportable. (The latter type requires assembling ability.)

Whether worker will sharpen and set saws or merely replace dull saws with sharpened ones.

Whether logs will be sawed into planks without regard to quality, or sawed for special uses, such as clear hardwood flooring and quarter-sawed furniture wood.

MEASURING THE YIELD OF A LOG WITH A LOG SCALE



FOLDING LOG SCALE

LOG SCALER SCALER

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Estimates the amount of lumber that can be sawed from each log and keeps cost and production efficiency records based on these determinations.

Work Performed

1. Calculates volume of log by noting into which standard length it has been sawed, by measuring its diameter with a special scale, and by reading volume corresponding to given diameter directly from scale.
2. Estimates probable sawing waste and losses occasioned by defects in logs and reduces appraisal of lumber content accordingly; measures hollows and surface defects and computes their total volume; judges losses occasioned by crookedness and taper of logs.
3. May operate conveyor that brings logs to sawmill log deck.

Working Conditions

Works in a sawdust-laden atmosphere.

Relation to Other Jobs

Promotion from: DECK MAN.

Promotion to: BUYER; SUPERINTENDENT.

Specialized Qualifications

Proficiency in mental arithmetic required to compute volumes of logs rapidly.

Extensive sawmill experience required to attain ability at computing losses in sawing and those occasioned by log defects.

Special Information

Determine: Extent of supervision of other workers.

Whether worker will be required to operate conveyor.

Kind of timber to be scaled. (Valuable hardwoods are scaled more accurately than softwoods.)

**LOG TURNER
LOG ROLLER
TRIPPER**

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Rolls logs from sawmill log deck with cant hook or winch, onto carriage which feeds them one at a time against the blade of the head saw; releases block and guides a log into position on carriage as it rolls down from sloping log deck; holds it in place firmly until carriage blocks and dogs (clamp) are set; turns over logs on carriage as directed to saw planks from another side.

Working Conditions

Works on log deck of a sawmill and is subject to loud, monotonous noise of head saw, flying sawdust, and chips.

The worker is in danger of injury from being struck or crushed by rolling logs.

Relation to Other Jobs

Promotion from: SAWMILL LABORER.

Promotion to: DOGGER.

Transfer from and to: DECK MAN; HEAD-SAW OFF-BEARER; TRIPPER.

Other relationships: This job may be added to the usual duties of DECK MAN or HEAD-SAW OPERATOR in mills where the log deck is provided with a mechanical log kicker for rolling and turning the logs.

Specialized Qualifications

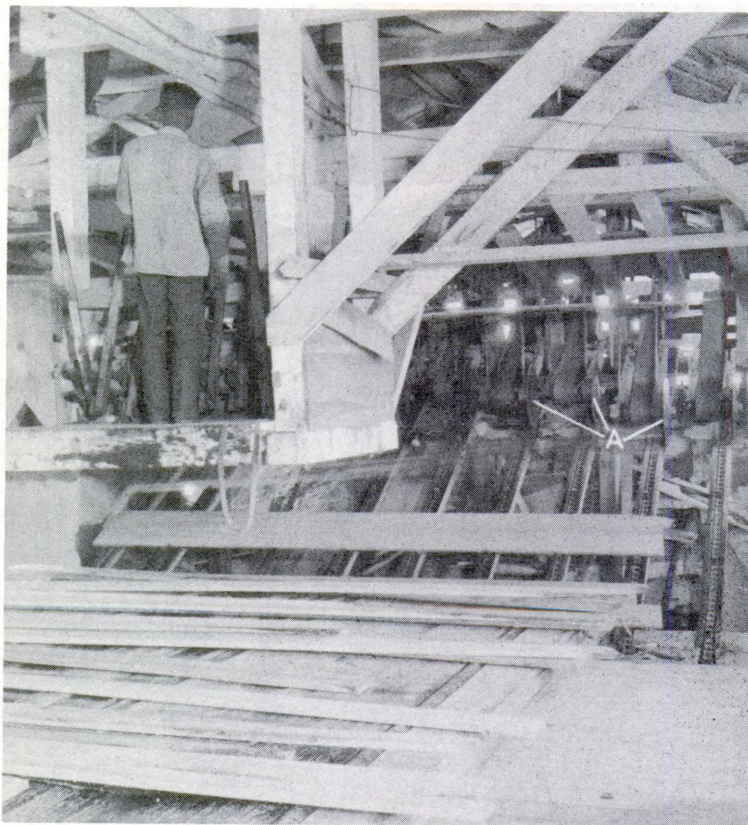
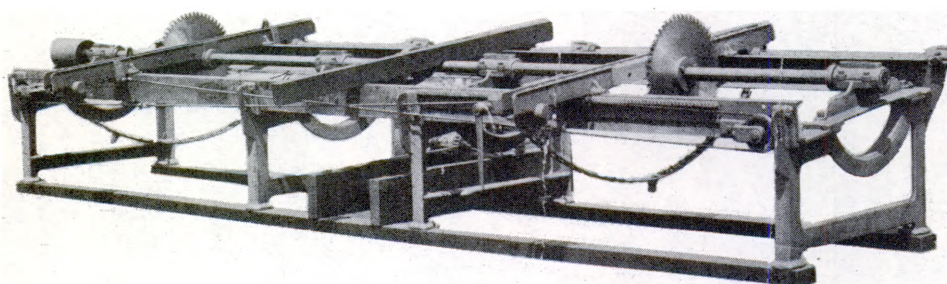
Strong and agile worker required to maintain the rapid pace of sawing operations without losing control of logs which may injure him or others if allowed to roll too far or too rapidly.

General sawmill experience desirable.

Special Information

Determine: Whether cant hook or winch will be used to roll the logs.

Size logs to be handled.

TRIMMER MAN AT CONTROLS OF MULTI-SAW TRIMMER**A. CIRCULAR SAWS.****DOUBLE-SAW TRIMMER**

TRIMMER MAN
TRIM-SAW MAN
TRIMMER
TRIMMING-MACHINE OPERATOR

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Saws planks, timbers, and boards to standard length lumber either with a small, double-saw trimmer or with a large, multi-saw trimmer

Work Performed

1. When operating a double-saw trimmer: Starts machine and, with the help of EDGER TAILER or TRIMMER HELPER, lifts boards onto feed table; gages general quality and specific defects in each plank and adjusts spacing between saws by handwheel to cut plank to the longest standard length or lengths. May sharpen and set dull saw blades.
2. When operating a multi-saw trimmer: Quickly gages the location and degree of various defects in the long planks as they are fed continuously toward saws by feed chains; moves the correct levers to drop into or raise from cutting position two or more of the series of saws, thus obtaining the greatest number of quality, standard lengths of lumber from each plank.

Equipment

Double-saw trimmer: A machine for crosscutting boards to reduce them to standard lengths and to square their ends. The cutting is done by two circular saws which are affixed to a single shaft supported in bearings on a rectangular, waist-high framework. One saw may be moved along the shaft, by turning a crank, to position for cutting standard board lengths, which are indicated by a scale and pointer on the framework. Boards are fed past the saws on two endless chains equipped with cleats.

Multi-saw trimmer: A machine comprising a gallery of three or more circular saws (usually ranging from 4 to 24 in number) used to cut planks into lumber of standard lengths. Each saw is of the swing type and is raised from or lowered into cutting position by a lever. All the levers are located on a central platform above the saws which provides the operator with an unobstructed view of all saws. On some machines the saws are connected directly to levers by cables; on others they are controlled by a pneumatic or an electric system.

Working Conditions

Works in a sawdust-laden atmosphere that is noisy from operation of saw. Subject to injury by flying chips of wood or falling boards.

Relation to Other Jobs

Promotion from: EDGER TAILER.

Promotion to: EDGER MAN.

Transfer from and to: BLOCK SETTER.

Other relationships: The duties of EDGER TAILER may be added to this job.

The duties of this job may be specialized and entitled DOUBLE CUT-OFF-SAW OPERATOR, EQUALIZER-SAW OPERATOR, PACK-AGER (HEAD), or TIE TRIMMER, according to the purpose for which the machine is used.

Specialized Qualifications

General sawmill experience required.

Carefulness, strength, endurance, and ability to judge lengths of boards rapidly and accurately required.

Special Information

Determine: Whether double-saw or multi-saw trimmer will be used.

Type and kind of lumber to be cut, such as soft (Southern pine) or hard (walnut).

Whether worker will sharpen and set trimmer saws or merely replaces dull saws with sharp ones.

**TRIPPER
SECOND OFF-BEARER**

LUMBER AND LUMBER PRODUCTS

THE SAWMILL JOBS

Job Summary

Removes planks from head saw conveyor and roughly sorts them according to size and quality, such as grain, appearance, and defects, for the succeeding operations of resawing, edging, or scrap sawing. May direct laborers who assist in the manual work involved. Works as a member of the head saw crew.

Working Conditions

Works in a sawdust-laden atmosphere that is noisy from operation of saw. Subject to injury from falling boards.

Relation to Other Jobs

Promotion from: HEAD-SAW OFF-BEARER.

Promotion to: DOGGER; EDGER MAN.

Transfer from and to: DOGGER; LOG TURNER.

Other relationships: This job may be added to the usual duties of EDGER MAN or HEAD-SAW OFF-BEARER.

Specialized Qualifications

General familiarity with grading of rough, heavy lumber required.

Strong and active worker desirable to handle heavy planks and timbers.

Special Information

Determine: Whether worker will sort lumber manually or whether there are mechanical means for transfer to other conveyors.

THE GRADING AND SEASONING JOBS

INTRODUCTION

These jobs are those of the Lumber Selection and Storage Division that relate primarily to lumber inspection. They may be logically subdivided into two classes: those in which the workers evaluate lumber at the time of purchase or sale, and those concerned with the inspection of lumber prior or incidental to its seasoning.

The distinguishing characteristic of these workers, ability to appraise wood, is developed only through experience. Thus, the transfer of workers from other industries to these jobs will be limited largely to those instances where work with lumber in an auxiliary or maintenance capacity has given the worker this essential knowledge of wood.

Since most woodworkers must have some ability to appraise lumber and recognize the various grades and kinds, there is in this respect a close connection between woodworking jobs in general and those of the Grading and Seasoning Group. This particular and somewhat peculiar ability, therefore, makes possible the transfer of workers and combination of jobs to suit production requirements, provided they are given opportunity to acquaint themselves with the details of the less familiar jobs.

Inasmuch as the workers engaged in the moving of lumber closely cooperate with and may work under the general supervision of those engaged in grading and seasoning, there exists an opportunity for them to acquire a general familiarity with lumber grading and seasoning.

The essential qualifications for employment in the Grading and Seasoning Jobs are ability to recognize grades, kinds, and value of lumber; knowledge of lumber seasoning processes (*see* Procedure, p. XXIII); sufficient clerical ability to keep simple inventory records; and physical ability to work out-of-doors under prevailing weather conditions.

JOB DESCRIPTIONS

GRADER

KILN MAN

LUMBER INSPECTOR

LUMBER PILER

SORTER

TALLYMAN

GRADER LUMBER GRADER

LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE GRADING AND SEASONING JOBS

Job Summary

Inspects and sorts various types of lumber such as rough lumber, planed lumber, or hardwood flooring; turns over and handles each piece of lumber as it passes along a conveyor and examines it for such defects as knots, faulty edges, stains, and unsatisfactory machine work; removes defective pieces and reroutes them either to KNOT SAWYER, who salvages parts of them, or to workers who dispose of unsalvageable pieces; marks each satisfactory piece with a number that indicates its grade and sends it to the SORTER, who places it in the proper bin.

Relation to Other Jobs

Promotion from: EDGER MAN; LUMBER PILER; ORDER PULLER; SORTER; TALLYMAN.

Promotion to: FOREMAN; LUMBER INSPECTOR.

Other relationships: The duties of this job may be specialized and entitled GRADER (MILLED LUMBER), GRADER (MOLDED LUMBER), or GRADER (ROUGH LUMBER), according to type of lumber graded. This job may be added to the usual duties of LUMBER INSPECTOR or KILN MAN.

The duties of SORTER, BUNDLER, or TALLYMAN may be added to this job.

Specialized Qualifications

Knowledge of lumber grades and types required (*see* Procedure, p. XXIII).

Special Information

Determine: Whether specific types of lumber, such as rough, milled, or molded, or any and all types, are to be graded.

Extent of clerical duties required, such as keeping records of the quantities of defective lumber rejected.

MEASURING THE MOISTURE CONTENT OF KILN-DRIED LUMBER



KILN MAN DRY-KILN MAN

LUMBER AND LUMBER PRODUCTS

LUMBER SELECTION AND STORAGE
THE GRADING AND SEASONING JOBS

Job Summary

Seasons lumber by a controlled drying process in a heated enclosure (kiln): Directs and frequently assists a LUMBER HANDLER or LUMBER PILER in the manual tasks involved, which include loading green (freshly cut) lumber on kiln trucks with accurate spacing between each piece according to the requirements for the kind of lumber, pushing the loaded truck into the kiln, and removing it after seasoning. Regulates the process of drying by proper adjustment of heating and spray valves, according to the appearance of the lumber, its sound when struck, or the appearance and texture of its fractured surface when broken.

For scientific kiln seasoning, this worker may first test a sample piece of lumber for moisture content by weighing before and after complete drying in an oven. From the results thus obtained he determines what atmospheric conditions are needed in the kiln and maintains them by frequent checking with thermometers and hygrometers, adjusting the heat and moisture accordingly.

Equipment

Kiln car: A small flatcar that runs on a track.

Hygrometer: An instrument consisting of two thermometers from the readings of which relative humidity can be calculated.

Kiln: A large wooden or brick chamber for artificially drying lumber. It is usually equipped with steam heating coils and a water-vapor spray that increase the temperature and humidity inside the chamber.

Working Conditions

The work requires frequent trips into a hot, humid kiln.

Relation to Other Jobs

Promotion from: LUMBER PILER.

Promotion to: FOREMAN; LUMBER INSPECTOR.

Other relationships: The duties of this job may be specialized and entitled KILN OPERATOR (who runs the tests, determines type and amount of drying, and generally supervises the manual work) and KILN STACKER or KILN LOADER (who performs the manual tasks required). The lumber may be piled in the kiln by a LUMBER PILER.

The duties of GRADER may be added to this job.

This job may be added to the usual duties of STATIONARY ENGINEER.

Specialized Qualifications

Thorough knowledge of the seasoning characteristics of lumber required. Familiarity with seasoning equipment of the type in use at a given establishment is required.

Husky worker desirable to move heavy loads of lumber into and out of kiln.

Special Information

Determine: Size and type of kiln.

Kinds of lumber seasoned.

Extent of supervision.

Number of workers supervised.

LUMBER INSPECTOR LUMBER CHECKER

LUMBER AND LUMBER PRODUCTS

LUMBER SELECTION AND STORAGE
THE GRADING AND SEASONING JOBS

Job Summary

Inspects shipments of lumber for defects, such as knot holes, splits, stains, and scant dimensions. Either examines and measures each piece of lumber if its value warrants, or estimates dimensions of most of the pieces, measuring and carefully inspecting only an occasional piece; calls grade and number of board feet for each piece to TALLYMAN, who makes proper notation on tally card; computes total quantity of each grade in shipment from tally. Supervises LUMBER HANDLERS, who perform manual tasks to facilitate lumber inspection. May keep office records and inventories, and may initiate orders for lumber and equipment.

Relation to Other Jobs

Promotion from: GRADER; KILN MAN; LOG SCALER.

Transfer from and to: FOREMAN.

Other relationships: The duties of GRADER, LOG SCALER, or TALLYMAN may be added to this job.

This job may be added to the usual duties of FOREMAN.

Specialized Qualifications

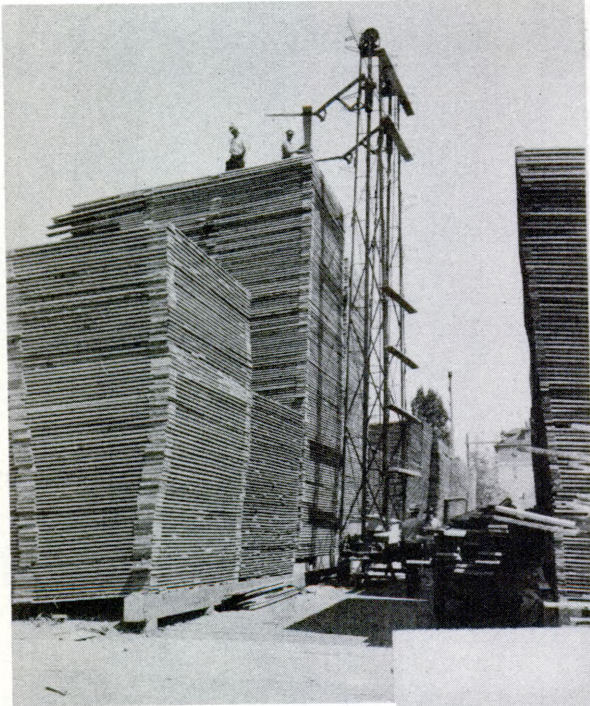
Ability to judge standard dimensions of lumber accurately and quickly required.

Complete knowledge of and thorough familiarity with kinds and grades of lumber required.

Special Information

Determine: Kinds of lumber inspected, such as pine and maple.

Type or types of lumber inspected, such as rough-sawn planks and planed boards.



MECHANICAL STACKER

RAISING A BOARD WITH A
LUMBER JACK

**LUMBER PILER
LUMBER STACKER
PILER**

**LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE GRADING AND SEASONING JOBS**

Job Summary

Works in a team of two or more LUMBER PILERS to pile rough-sawed or planed lumber in large stacks for seasoning (drying) and storage, lifting lumber from the ground and laying it on stack manually or with the aid of mechanical equipment. These stacks prevent or mitigate deterioration from cracking, decaying, warping, or insect attack.

Work Performed

The tasks of this job vary according to the average height of stacks (6 to 40 or 50 feet), which height is more or less dependent upon the space available in the yard and the volume of lumber handled by an establishment.

1. When stacking entirely by hand (for all stacks up to waist or shoulder height): Places heavy timbers level on ground for stack supports. Lifts lumber from loaded vehicle or from pile deposited by lumber carrier or derrick, and places it across supports in layers; according to the kind of lumber stacked, places stickers (small pieces of wood) of specific size between each or several layers of boards to increase circulation of air through pile and to facilitate correct drying.
2. When using a lumber jack or hoisting bar (for stacks up to 10 or 15 feet): Either lays each piece of lumber over hoisting bar or the point of a lumber jack and bears down on short end to raise long end to top of stack, when working on ground; or grasps the end of board so raised, lifts it to top of stack, and places it in position, when working atop pile.
3. When using a mechanical stacker (for stacks on up to 50 feet): Either places pieces of lumber on brackets of stacker when stationed on ground, or removes boards from stacker and places them in position when working atop pile.

Equipment

Hoisting bar: A horizontal metal bar in the pile or supported beside it that serves as a fulcrum on which a board may be raised at one end by depressing the other.

Lumber jack (or loader buck): An upright post mounted on three legs, usually with a spiked tip. The tip serves as a fulcrum on which a board may be raised at one end by depressing the other.

Mechanical stacker: A vertical chain conveyor about 10 or 15 feet wide.

The chain is equipped with a pair of brackets about every foot. Boards are placed on the lower brackets and carried to the top of the pile.

Working Conditions

Worker is subject to injury by falling lumber.

Relation to Other Jobs

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER; TEAMSTER; YARD LABORER.

Promotion to: FOREMAN; GRADER; KILN MAN.

Other relationships: The duties of this job may be divided into two separate jobs entitled BOOSTER (who works on the ground) and JACKER (who works on top of the pile).

The duties of this job may be specialized and entitled KILN STACKER if duties pertain only to kiln piling.

Specialized Qualifications

Worker must be strong and robust in order to perform the heavy manual tasks continually and rapidly.

Special Information

Determine: Whether determination of the size of spacing pieces (stickers) and pile openings needed to season different kinds of wood will be made by this worker or by YARD FOREMAN.

SORTER
LUMBER SORTER
SEPARATOR
PUNCHER

LUMBER AND LUMBER PRODUCTS

LUMBER SELECTION AND STORAGE
THE GRADING AND SEASONING JOBS

Job Summary

Classifies various grades (according to GRADER'S marks) or sizes, according to length, width, and thickness, of lumber and places each grade or size in a separate bin. Inspects each board for color, measures or estimates its dimensions, notes grade mark placed on it, and places it in appropriate bin.

Boards may be delivered to this worker on a conveyor, through a chute, or on hand trucks.

Equipment

Measuring table: A table used to measure the length of boards. A board or stop is fastened across one end of the table and a measuring scale is printed along the table top to facilitate the rapid measurement of boards.

Working Conditions

Worker is subject to injury by falling lumber.

Relation to Other Jobs

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER.

Promotion to: GRADER.

Transfer from and to: ORDER PULLER; TALLYMAN.

Other relationships: The duties of this job may be specialized and entitled SORTER (MILLED LUMBER), SORTER (MOLDING), or SORTER (ROUGH LUMBER), according to the type of lumber handled.

This job may be added to the usual duties of GRADER.

Specialized Qualifications

General familiarity with lumber desirable in order to recognize different grades and estimate dimensions rapidly.

Husky worker desirable in order to handle boards of various sizes without danger of injury to himself or others.

Special Information

Generally this worker sorts according to physical dimensions, while a GRADER sorts according to quality only. Because the border line is not always distinct, it would be well to ascertain the extent of quality grading required of this worker.

**TALLYMAN
TALLYBOY
LUMBER CHECKER**

**LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE GRADING AND SEASONING JOBS**

Job Summary

Records the quantity of lumber in shipments or storage lots determined by LUMBER INSPECTOR. Checks each piece of lumber against a list to be sure all are accounted for; estimates board feet in each piece, using a lumber scale; and computes total amount in each lot tallied. May supervise loading and unloading while tallying.

Equipment

Lumber scale: A special measuring stick for computing board feet.

Relation to Other Jobs

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER.

Promotion to: FOREMAN; GRADER; STOCKKEEPER.

Transfer from and to: ORDER PULLER; SORTER.

Other relationships: This job may be added to the usual duties of FOREMAN, LUMBER INSPECTOR, or TRUCK DRIVER.

Specialized Qualifications

Knowledge of lumber grades and types desirable.

Experience in work with lumber desirable.

Special Information

Determine: Extent of supervision over others.

Whether worker will make any actual estimates of quantities of lumber.

THE LUMBER MOVING JOBS

INTRODUCTION

The Lumber Moving Jobs are those of the Selection and Storage Division which, for the most part, are characterized by their requirements of ability and skill in the operation of powered conveyances to move lumber for the purpose of facilitating the work of the Grading and Seasoning Jobs and the various production workers.

These jobs are found in all industries where heavy or bulky material is moved or transported. Employment for any of these workers in the Lumber and Lumber Products Industries requires little beyond the usual training acquired in another industry except familiarity with lumber terminology and wood storage methods. Hence, whenever employment opportunities become limited in a particular industry, these workers may be transferred readily to similar jobs in another.

Within the Lumber and Lumber Products Industries these workers find their closest relationship with the Grading and Seasoning workers, whose work they facilitate and with whom they cooperate closely.

JOB DESCRIPTIONS

DERRICK OPERATOR

ELEVATOR OPERATOR

LOCOMOTIVE-CRANE OPERATOR

LUMBER-CARRIER DRIVER

SLINGMAN

TEAMSTER

TRACTOR DRIVER

TRUCK DRIVER

Engineer III 5-73.330
 Also covers: Guy-Derrick Operator 5-73.520
 DERRICK OPERATOR Stiff-Leg-Derrick
 Operator 5-73.520
 DERRICK MAN

LUMBER AND LUMBER PRODUCTS

LUMBER SELECTION AND STORAGE

THE LUMBER MOVING JOBS

Job Summary

Moves logs and timbers from flatcars, boats, or streams to storage yard with a stationary derrick, by a skillfully timed and coordinated manipulation of various levers and pedals to lift, swing, and lower loads according to signals from SLINGMAN, who helps to guide the loads into place.

Keeps derrick in an efficient operating condition by periodic lubrication and minor repairs to engine, hoisting machinery, and cables; where derrick is steam driven, either kindles and fires the steam boiler or supervises a FIREMAN in this task.

Equipment

Stiffleg derrick: A machine for lifting and moving heavy loads. It consists of a turntable, a counterweighted base, a power unit, control equipment, a mast, and a boom. A steam engine or other type of prime mover provides power for the rotation of a series of winch drums which reel and unreel cables that move the various parts of the derrick. Two stifflegs (supporting beams), fastened in secure foundations and extending to top of the derrick mast, hold it vertical against the thrust imposed by the derrick boom and load. The boom is a rigid beam that serves to support the load. It is hinged at the bottom of the mast and is supported and moved by cables. By coordinated operation of the various winch drums, the boom can be raised and lowered, the turntable swung to reach the load, and the load cable can be reeled or unreel to lift or lower the load.

Guy derrick: A machine similar to the stiffleg derrick except that its mast is supported by guy cables instead of stifflegs.

Working Conditions

The worker stands or sits in a noisy operator's cab which is often hot from the engine or steam boiler. There is danger of becoming entangled in moving machine parts or being struck by the flying end of a broken cable.

Relation to Other Jobs

Promotion from: FIREMAN; SLINGMAN.

Promotion to: FOREMAN.

Transfer from and to: LOCOMOTIVE-CRANE OPERATOR.

Other relationships: The firing of the boilers may be performed by a FIREMAN.

Specialized Qualifications

Previous successful crane or derrick operating experience required.

Robust worker required to withstand continual outside work with little or no protection from the weather.

Ability to estimate weights of loads is important in order to prevent damage to machinery and injury to other workers which may result from overloading the derrick. It should be noted that, when transferred from derrick to crane operation, a worker must proceed with utmost care in operating the less stable crane.

State or municipal operator's license may be required.

Special Information

Determine: Whether state or municipal license is required.

Size, make, and type of derrick to be operated.

Whether worker will also be required to operate a crane.

ELEVATOR OPERATOR

LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE LUMBER MOVING JOBS

Job Summary

Lifts loads of lumber or woodwork from one level of a plant to another by operating an elevator. Helps to move loaded hand trucks onto and from the elevator. Lubricates elevator machinery and may make minor repairs.

Relation to Other Jobs

Promotion from: YARD LABORER.

Promotion to: LUMBER-CARRIER DRIVER; LUMBER PILER;
ORDER PULLER; SORTER; TALLYMAN; TRACTOR DRIVER;
TRUCK DRIVER.

Other relationships: This job may be added to the usual duties of LUMBER HANDLER.

Specialized Qualifications

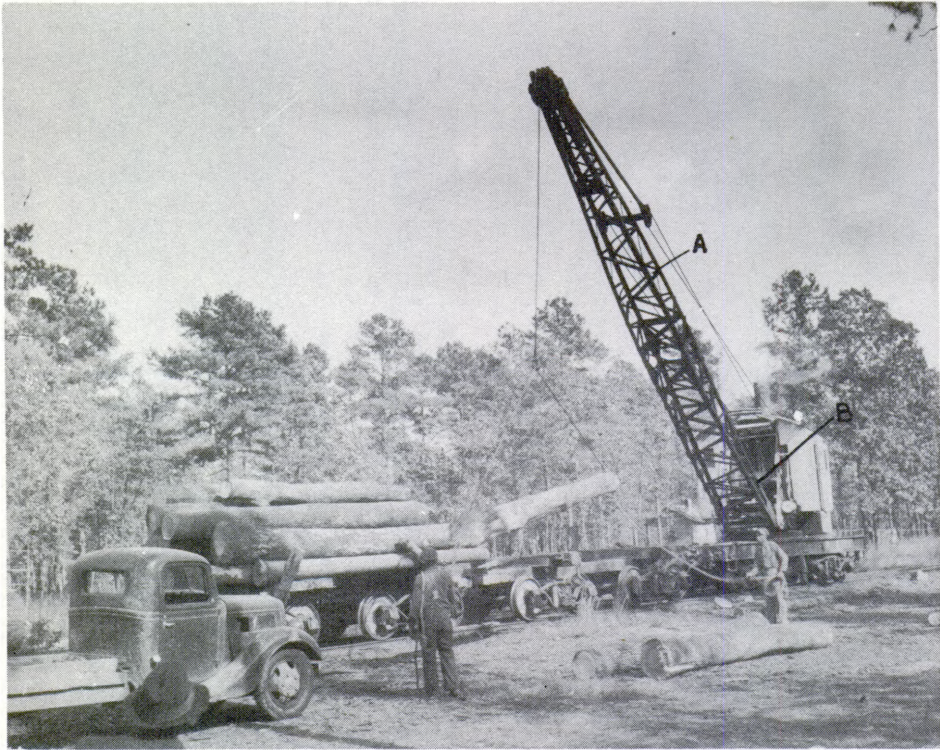
No experience required.

Strong and robust worker desirable.

Special Information

Determine: Extent of maintenance and repair work required.

LOADING LOGS WITH A LOCOMOTIVE CRANE



A. BOOM.
B. WINCH DRUM.

LOCOMOTIVE-CRANE OPERATOR
LOCOMOTIVE-STEAM-CRANE OPERATOR

LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE LUMBER MOVING JOBS

Job Summary

Moves logs and timbers along a railway with a self-propelled crane by a carefully timed and coordinated manipulation of levers and pedals to lift and lower loads and to move crane along tracks between the points of loading and unloading. If crane is steam powered, either fires the steam boiler or supervises the activities of a FIREMAN; keeps crane in efficient operating condition by periodic lubrication and minor repair to locomotive, hoisting machinery, and cables.

The difference between this job and that of DERRICK OPERATOR lies not so much in moving the crane along tracks, but rather in the instability of the unbraced crane. This factor requires considerable experience and judgment in selecting maximum safe loads and in moving them efficiently without upsetting the unstable, loaded crane.

Equipment

Locomotive crane: A machine for lifting and moving heavy loads. It consists of a mobile or flatcar type base that supports a turntable; and a powered winch control equipment, and a boom which are mounted on the turntable. A steam engine provides power for movement of the car along tracks as well as for turning the winch drums that reel and unreel the cables. The boom, a beam for supporting the load cable, is hinged at the turntable and supported and moved by means of cables at its outer end.

By coordinated operation of the various winch drums, the boom can be raised and lowered, the turntable swung to reach the load, and the load line reeled or unreel to lift or lower load.

Working Conditions

The worker stands or sits in a noisy operator's cab which is often hot from the engine or steam boiler.

There is danger of becoming entangled in moving machine parts or being struck by the flying end of a broken cable.

Relation to Other Jobs.

Promotion from: FIREMAN; SLINGMAN.

Promotion to: FOREMAN.

Transfer from and to: DERRICK OPERATOR.

Other relationships: The firing of the boilers may be performed by a FIREMAN.

Specialized Qualifications

Previous, successful crane or derrick operating experience is required.

Robust worker desirable to withstand continual outside work with little protection from the weather.

The worker should have ability to estimate weights of loads. This is important in order to prevent damage to machinery and injury to other workers which may result from overloading the crane.

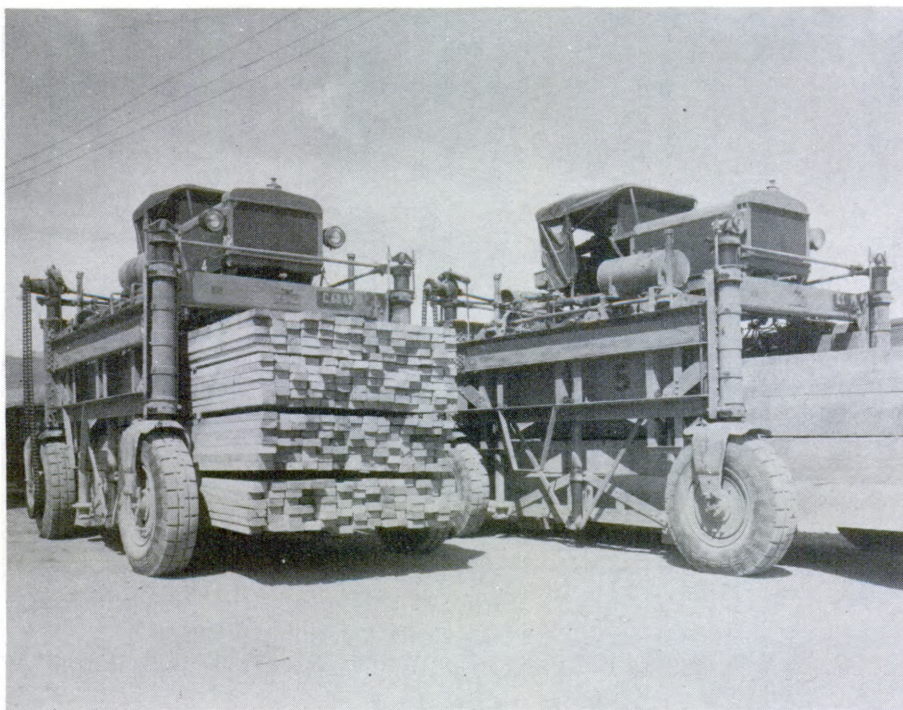
State or municipal operator's license may be required.

Special Information

Determine: Whether State or municipal license is required.

Size, make, and type of locomotive crane to be operated.

TRANSPORTING LUMBER WITH LUMBER CARRIERS



**LUMBER-CARRIER DRIVER
ROSS-CARRIER DRIVER
ROSS-CARRIER MAN**

**LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE LUMBER MOVING JOBS**

Job Summary

Drives a special truck-like machine, such as a Ross carrier, to lift, transport, and deposit piles of lumber in and about the buildings and yard of a woodworking establishment.

Work Performed

1. Drives carrier into position, straddling pile of lumber, and moves levers to actuate mechanism that engages bolsters (cross beams supporting the pile of lumber) and that lifts the pile from the ground.
2. Drives carrier to designated location with lumber slung underneath, and by levers lowers lumber to ground.
3. Fuels, oils, greases, and makes minor repairs to machine. May assist LUMBER HANDLER in stacking lumber in piles for removal by carrier.

Equipment

Lumber carrier: A vehicle, having the appearance of a motor truck on stilts, which is used to move lumber piles short distances. It consists of a frame, motor and controls similar to those of a motor truck; four wheels individually mounted at the bases of four columns; and a power hoisting mechanism for grasping the supporting cross bars (bolsters) upon which the lumber is piled, lifting the pile, and carrying it suspended beneath the frame. The individual mounting of the wheels on columns make it possible to drive the vehicle astride a pile of lumber to be picked up.

Relation to Other Jobs

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER; TRUCKING HELPER.

Promotion to: FOREMAN.

Transfer from and to: TRACTOR DRIVER; TRUCK DRIVER.

Other relationships: This job and the job of TRACTOR DRIVER may be combined into one job entitled DRIVER.

The servicing of the lumber carrier may be performed by a TRUCK MECHANIC.

The duties of TRUCK MECHANIC pertaining to carrier repairs may be added to this job.

Specialized Qualifications

Driving experience required, preferably of a truck or tractor nature.

Robust worker desirable to withstand continual outside work.

Mechanic's experience desirable.

License required if these duties extend outside of yard.

Special Information

Determine: Ownership of truck driver's or operator's license.

Size, type, and make of carrier to be driven.

Ownership of mechanic's tools.

References or bond requirements.

SLINGMAN
GROUNDMAN
CRANE FOLLOWER

LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE LUMBER MOVING JOBS

Job Summary

Lashes ropes, cables, or chains to loads of logs and lumber to be moved by crane or derrick and engages fastenings with cable hook; signals operator as to proper movement and spotting of loads; guides and steadies loads as they are swung into position; and removes fastenings when loads have been lowered at designated location. May couple and uncouple cars and set switches to direct the movement of locomotive crane and cars about the yard of an establishment.

Considerable care must be exercised in fastening the loads securely and in directing their movement in order to prevent injury to workers and equipment in the yard.

Working Conditions

The work is outside. There is considerable danger of serious injury from being hit by cable hook or crushed under falling logs.

Relation to Other Jobs

Promotion from: LUMBER HANDLER; SAWMILL LABORER.

Promotion to: DERRICK OPERATOR; FIREMAN; LOCOMOTIVE-CRANE OPERATOR.

Other relationships: The duties of this job at the sawmill may be added to the usual duties of DECK MAN.

This job may be specifically designated as HOOKER, SLINGER, or TONGER, according to the type of equipment used.

Specialized Qualifications

Previous experience as SLINGMAN in another industry, or considerable experience at lashing together bulky objects with rope or cable, required.

Strong active worker desirable to push and move heavy lumber.

Special Information

Determine: Type of grappling equipment to be used, such as cable and hook.

**TEAMSTER
HORSE AND WAGON DRIVER
MULE SKINNER**

LUMBER AND LUMBER PRODUCTS

LUMBER SELECTION AND STORAGE

THE LUMBER MOVING JOBS

Job Summary

Hauls loads of lumber or mill products short distances within or near a woodworking establishment with a horse-drawn or mule-drawn wagon. Attends draft animals by feeding, watering, washing, and currying them; cleans the stables; harnesses and unharnesses draft animals, and drives them to move vehicles that haul lumber or wood products. May load or unload wagon or assist in such work.

Relation to Other Jobs

Promotion from: STABLEMAN; YARD LABORER.

Promotion to: TRUCK DRIVER.

Transfer from and to: LUMBER HANDLER.

Other relationships: This job, when entirely within the yard, may be added to the usual duties of LUMBER HANDLER.

Care of the animals and stable may be performed by a STABLEMAN.

Specialized Qualifications

General experience with draft animals required.

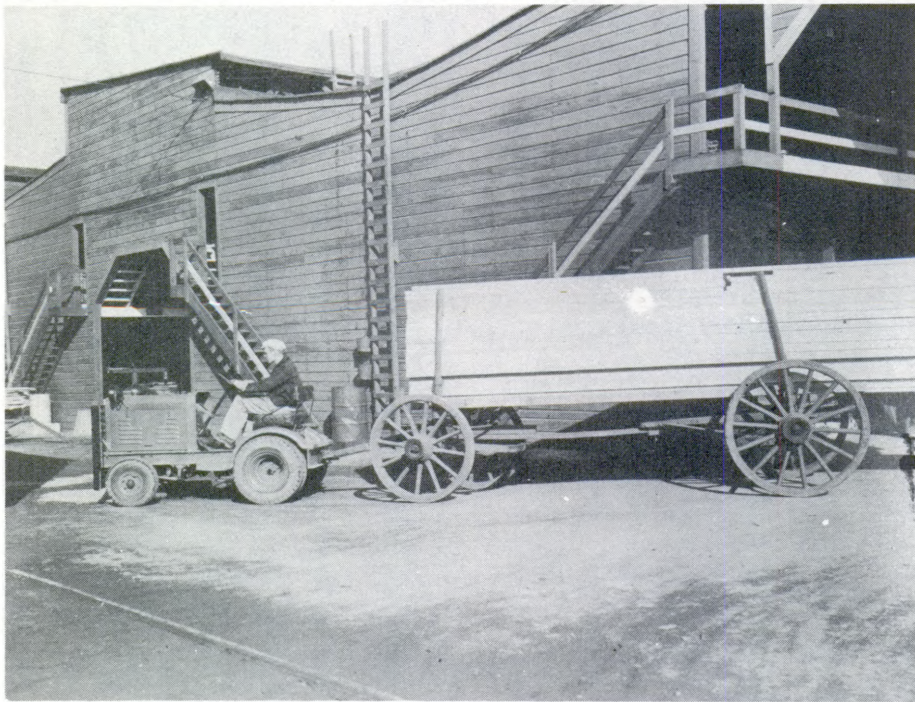
Robust worker desirable to withstand continual outside work.

Special Information

Determine: Number of draft animals to be attended.

Loading and unloading requirements (strength).

HAULING A LOAD OF LUMBER



TRACTOR DRIVER TRACTOR OPERATOR

LUMBER AND LUMBER PRODUCTS

LUMBER SELECTION AND STORAGE

THE LUMBER MOVING JOBS

Job Summary

Drives a tractor around and within a lumberyard to haul a trailer loaded with lumber or logs, drives it in and about woods to drag logs which have been cut from trees. Deposits trailer or load at various locations according to instructions; couples and uncouples trailer; may help to load and unload trailer; may service tractor by fueling, oiling, washing, and greasing it.

Working Conditions

The jolts and jars encountered in driving over rough ground are injurious to the health of some workers.

Relation to Other Jobs

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER; TRUCKING HELPER.

Promotion to: FOREMAN; LUMBER PILER.

Transfer from and to: LUMBER-CARRIER DRIVER; TRUCK DRIVER.

Other relationships: This job may be added to the usual duties of TRUCK DRIVER.

The loading and unloading of the trailer may be performed by a LUMBER HANDLER.

The duties of TRUCK MECHANIC pertaining to tractor repairs may be added to this job.

This job and the job of LUMBER-CARRIER DRIVER may be combined into one job entitled DRIVER.

This job may be specifically designated CATERPILLAR-TRACTOR DRIVER or TRUCK-TRACTOR DRIVER, according to the type of tractor used.

Specialized Qualifications

Driving experience, preferably on a heavy truck, is required.

Experience in hauling a trailer desirable.

Worker must have sufficient strength and stamina to load tractor and to withstand jolting of tractor.

Mechanic's experience desirable, since worker may be required to make minor repairs to tractor.

Special Information

Determine: Size, type, and make of tractor.

License required, such as driver's.

Whether worker will be required to service or repair tractor.

Also covers: Truck Driver, Heavy 7-36.250
Truck Driver, Light 7-36.260

TRUCK DRIVER
CHAUFFEUR
DELIVERY MAN
DRIVER (DELIVERY)

LUMBER AND LUMBER PRODUCTS LUMBER SELECTION AND STORAGE
THE LUMBER MOVING JOBS

Job Summary

Delivers lumber and mill products by motor truck to rail or boat terminals, customers, or plant departments. Either loads truck with materials specified on invoice supplied by SHIPPING CLERK, or supervises TRUCKING HELPER in this task. Drives truck about city or between cities in distribution area, delivering lumber and mill products. Collects money for c. o. d. orders. May be required to fuel, oil, grease, and wash truck.

Equipment

Motor truck of about two and one-half ton capacity or a larger truck with trailer.

Relation to Other Jobs

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER; TEAMSTER; TRUCKING HELPER.

Promotion to: FOREMAN; STOCKKEEPER.

Transfer from and to: LUMBER-CARRIER DRIVER; TRACTOR DRIVER.

Other relationships: The duties of TALLYMAN, TRACTOR DRIVER, or TRUCK MECHANIC (pertaining to truck repairs) may be added to this job.

The loading and unloading of vehicles may be performed by a LUMBER HANDLER.

Specialized Qualifications

Minor clerical ability required for handling receipts and payments.

Familiarity with streets and roads within delivery area required.

Truck driver's or chauffeur's license usually required.

Husky worker desirable, for continual outside work, and for loading truck.

Auto mechanic's ability desirable.

Special Information

Determine: Educational and clerical requirements.

Specific area for deliveries.

Requirement for municipal or State driver's license.

Requirement for references and posting of bond.

Size, type, and make of truck operated.

Ownership of mechanic's tools.

THE PLANNING AND REGULATING JOBS

INTRODUCTION

The Planning and Regulating Jobs are those charged with the responsibility for planning and preparing work to expedite the productive efforts of others.

Although these jobs are found in other industries under the same or similar titles, each worker is a specialist in a phase of the fabricating of wooden articles, and is not readily transferable to similarly designated jobs in other industries.

This may be considered a liaison group between office and shop, correlating the functions of management and production, and maintaining close contact with all jobs in the establishment. For example, a specific FOREMAN is so closely related to the group of workers he supervises that he is considered an actual part of that group or department. Thus, as officers of management and as leaders of individual production units, these jobs are the connecting links required in any industry.

All of these jobs require supervising ability and long experience, or semi-professional training in lumber and lumber products. For the most part, they are filled by outstanding and capable woodworkers in whom the management has gained confidence over a period of years.

JOB DESCRIPTIONS

DRAFTSMAN

ESTIMATOR

FOREMAN

LAY-OUT MAN

ORDER PULLER

STOCKKEEPER

WOODWORKING-MACHINERY SET-UP MAN

**DRAFTSMAN
DETAIL MAN
DETAILER**

LUMBER AND LUMBER PRODUCTS

**PLANNING AND REGULATING
THE PLANNING AND REGULATING JOBS**

Job Summary

Prepares detailed drawings and lists of materials for millwork and wooden products manufactured by a woodworking establishment. Interprets small scale architectural drawings and specifications, and makes larger working drawings, in some cases actual size, for the use of FOREMAN, LAY-OUT MAN, or WOODWORKING-MACHINERY SET-UP MAN in producing the required product.

May confer with ARCHITECT, CONTRACTOR, or FOREMAN to clarify doubtful points. May prepare job sheets during absence of or to assist LAY-OUT MAN.

Relation to Other Jobs

Promotion from: LAY-OUT MAN.

Promotion to: ESTIMATOR.

Other relationships: This job may be added to the usual duties of ESTIMATOR.

Specialized Qualifications

High school education and drafting experience are usually required. Ability to interpret architectural drawings and specifications required. Ability to make completely dimensioned mechanical drawings to scale and to do legible freehand lettering required.

Freehand sketching ability and familiarity with lumber and lumber products nomenclature desirable.

Special Information

Determine: Ownership of drawing instruments.

Type of woodwork detailed, such as sashes, doors, or shaped wooden articles.

**ESTIMATOR
LISTER
TAKE-OFF MAN**

**LUMBER AND LUMBER PRODUCTS PLANNING AND REGULATING
THE PLANNING AND REGULATING JOBS**

Job Summary

Computes lumber, material, and labor costs for all types of millwork and wooden products manufactured by a woodworking establishment. Studies architectural drawings and specifications to ascertain type, quantity, and quality of product desired; from this study computes costs and may set prices. May confer with FOREMAN to determine method of production. May also perform associated sales duties.

This is a very responsible job and the worker must be familiar with all phases of lumber mill practice and with all the different costs of production, as he is instrumental in obtaining contracts and executing them at a profit.

Relation to Other Jobs

Promotion from: DRAFTSMAN; WOODWORKING-MACHINERY SET-UP MAN.

Promotion to: SUPERINTENDENT.

Other relationships: The duties of DRAFTSMAN may be added to this job.

Specialized Qualifications

Complete knowledge of and familiarity with lumber mill production methods, costs, and practices required.

Special Information

Determine: Kinds of woodwork to be estimated, such as construction lumber, sashes and doors, or shaped wooden articles.

FOREMAN

LUMBER AND LUMBER PRODUCTS

PLANNING AND REGULATING

THE PLANNING AND REGULATING JOBS

Job Summary

Supervises, plans production for, and coordinates the activities of workers in a department of a lumber and woodworking establishment, assuming responsibility for the quality and quantity of their work.

Substitutes for workers who are temporarily absent and assists in the work when necessary to maintain production. Keeps such clerical records as production reports and workers' time cards, and orders supplies. May interview, employ, and dismiss workers as well as instruct employees in the efficient performance of their duties. May aid in setting up and repairing machines.

Relation to Other Jobs

Promotion from: Workers with wide experience in woodworking, with thorough knowledge of the jobs within a specific section, and with supervisory ability may be promoted to FOREMAN of their respective department.

Promotion to: SUPERINTENDENT.

Transfer from and to: LUMBER INSPECTOR.

Other relationships: This job is usually specialized and designated by specific titles, such as FOREMAN (LUMBER SELECTION AND STORAGE), FOREMAN (MAINTENANCE), FOREMAN (SAW-MILL), and FOREMAN (WOODEN ARTICLE FABRICATING), according to the type of work, type of machine operation, or department supervised.

The duties of LAY-OUT MAN, LUMBER INSPECTOR, MILLMAN, or TALLYMAN may be added to this job.

Specialized Qualifications

Detailed and practical knowledge of woodworking processes, familiarity with the operation of woodworking equipment and ability to read and interpret blueprints required.

This worker must be skilled in the tasks of the workers supervised and should be able to teach such tasks to new men.

He must also have the ability to coordinate the work of subordinates.

Special Information

Determine: Extent of estimating quantities of materials and supplies required and initiating orders for their procurement.

Extent of hiring, discharging, and training duties.

Types of activity to be supervised.

Number of workers supervised.

LAY-OUT MAN PATTERN MARKER

LUMBER AND LUMBER PRODUCTS

PLANNING AND REGULATING

THE PLANNING AND REGULATING JOBS

Job Summary

Obtains materials required to make articles shown on architectural drawings or blueprints, and marks each piece of material with guide lines and reference points to indicate where it must be cut or shaped.

Work Performed

1. Studies drawings carefully, noting measurements and dimensions of cuts to be made and sizes and kinds of lumber or stock required to make each part. May confer with DRAFTSMAN to clarify doubtful points. Obtains required stock from machine operators or warehouse, or lists the items for ORDER PULLER who procures them.
2. Marks on each piece the center lines and dimensions for mortises, tenons, bored holes, and saw cuts; traces or redraws outlines from blueprints on surface of wooden parts for decorative or irregular cuts; notes on job sheet the number of each article required and sends laid-out pieces to FOREMAN or directly to machine operators.

Relation to Other Jobs

Promotion from: CHAIN MORTISE-MACHINE OPERATOR; HOLLOW-CHISEL MORTISE-MACHINE OPERATOR; GLUEMAN; MATCHER OR MOLDER OPERATOR; MILLMAN; SASH, DOOR, AND FRAME ASSEMBLER; SHAPER OPERATOR; TENON-MACHINE OPERATOR.

Promotion to: DRAFTSMAN; FOREMAN.

Other relationships: This job may be added to the usual duties of FOREMAN or WOODWORKING-MACHINERY SET-UP MAN.

Specialized Qualifications

Complete familiarity with the operation and set up of woodworking machines and a broad knowledge of woodworking practice required as an aid in laying out work.

Some drafting ability desirable.

Special Information

Determine: Kinds of work laid out, such as building trim, sashes and doors, or wooden novelties.

ORDER PULLER
STOCKMAN
LUMBER CHECKER
PICKER
LOADER
MILL LUMBERMAN

LUMBER AND LUMBER PRODUCTS

PLANNING AND REGULATING

THE PLANNING AND REGULATING JOBS

Job Summary

Selects and obtains item of lumber, millwork, or other stock from storage places to make up orders. Loads lumber from bins, piles, or racks onto a hand truck, and pushes loaded hand truck to shipping department, crating department, or woodworking department. Checks items to insure agreement in quantity, type, and size of stock with specifications of the order. Usually works under supervision of STOCKKEEPER.

Equipment

Hand truck: A vehicle with a flat bed mounted on two, three, or four wheels. The bed is usually provided with upright stakes at the sides to hold the loads in place. One type has a metal frame mounted on three wheels and is equipped with a ratchet or hydraulic jack, operated by a handle, with which the truck bed is raised or lowered to lift and haul piles of wood.

Relation to Other Jobs

Promotion from: ELEVATOR OPERATOR; LUMBER HANDLER.

Promotion to: FOREMAN; GRADER; STOCKKEEPER.

Transfer from and to: SORTER; TALLYMAN.

Other relationships: This job may be added to the usual duties of STOCKKEEPER.

The duties of this job are frequently divided into two jobs entitled YARDMAN and WAREHOUSEMAN.

Specialized Qualifications

Knowledge of lumber and woodworking terms, symbols, and markings required.

Previous clerical experience desirable.

Special Information

Determine: Clerical duties required.

Whether worker will select materials from an itemized list or from knowledge of items necessary to make a product.

STOCKKEEPER
STOCK CLERK

LUMBER AND LUMBER PRODUCTS

PLANNING AND REGULATING
THE PLANNING AND REGULATING JOBS

Job Summary

Supervises and assumes responsibility for the receipt, efficient storage, and shipment of all lumber and mill products. Arranges for the storage of material; keeps a running inventory of lumber and finished stock on hand; takes complete inventories periodically, submitting reports to office; checks contents of shipments against orders, making out bills of lading or delivery sheets; routes shipments by train, truck or ship; and performs other associated clerical and supervisory tasks as required.

Relation to Other Jobs

Promotion from: ORDER PULLER; TALLYMAN; TRUCK DRIVER.

Other relationships: This job is frequently divided into separate jobs entitled RECEIVING CLERK, SHIPPING CLERK, and WAREHOUSEMAN, according to the type of duties performed.

The duties of ORDER PULLER may be added to this job.

Specialized Qualifications

Familiarity with kinds and grades of lumber and millwork required, as well as with the routes and regulations of railroads, trucking companies, and steamship lines.

Clerical experience required.

Special Information

Determine: Whether shipping familiarity concerns rail, trucking, or water routes and agencies.

Types of office machines operated.

Number of workers supervised.

Bond posting requirements.

Whether worker will be required to read and write foreign languages, and, if so, what languages.

WOODWORKING-MACHINERY SET-UP MAN
SET-UP MAN
MACHINE SETTER
TOOL SETTER

LUMBER AND LUMBER PRODUCTS

PLANNING AND REGULATING

THE PLANNING AND REGULATING JOBS

Job Summary

Changes and adjusts cutting tools on any or all woodworking machinery, such as lathes, boring machines, matchers, molders, mortise machines, planers, routers, sanders, saws, shapers, and tenon machines.

This job requires considerable skill, care, and experience, and a thorough familiarity with woodworking machinery to make machine set-ups quickly and accurately.

Relation to Other Jobs

Promotion from: MILLMAN; any worker who is familiar with the operation of woodworking machines.

Promotion to: ESTIMATOR; FOREMAN.

Other relationships: The duties of KNIFE GRINDER, LAY-OUT MAN, or SAW FILER may be added to this job.

The duties of this job may be divided among all the machine operators, each setting up his particular machine.

Specialized Qualifications

Must be able to appraise the quality of sharpening performed by the KNIFE GRINDER, returning for regrinding any cutting tools which are not perfectly shaped, thus preventing loss or waste of lumber.

Must be able to read blueprints and from them visualize the sequence of operations most efficient with the machinery available.

Special Information

Determine: What machines, such as planer, shaper, and automatic lathe, are to be set up?

Whether worker will be required to sharpen cutter blades.

THE CRAFT JOBS

INTRODUCTION

This is a group of skilled jobs that require well-rounded workers, completely trained in one of the trades, and competent to execute any or all of the tasks their trade embraces.

Excepting the jobs of PAINTER (FINISHING), which may be found in nearly any manufacturing or building industry, and WOOD PATTERN-MAKER, which is closely allied with foundry work, these jobs are peculiar to the Lumber and Lumber Products Industries or the woodworking branches of such industries as Furniture or Construction.

Within the Lumber and Lumber Products Industries they are related to other jobs principally in an educating or controlling capacity. Establishments organized along mass production lines may employ the various craftsmen to perform key jobs in a largely semiskilled organization. The smaller and less specialized establishments in the industry may employ craftsmen almost exclusively, assigning a variety of tasks to each and requiring him to perform the entire sequence of operations.

As for most skilled workers, the competence of any of these workers is attested by journeyman credentials or by the adequacy of his work history and references.

JOB DESCRIPTIONS

CABINETMAKER

HAND WOOD-CARVER

MILLMAN

PAINTER (FINISHING)

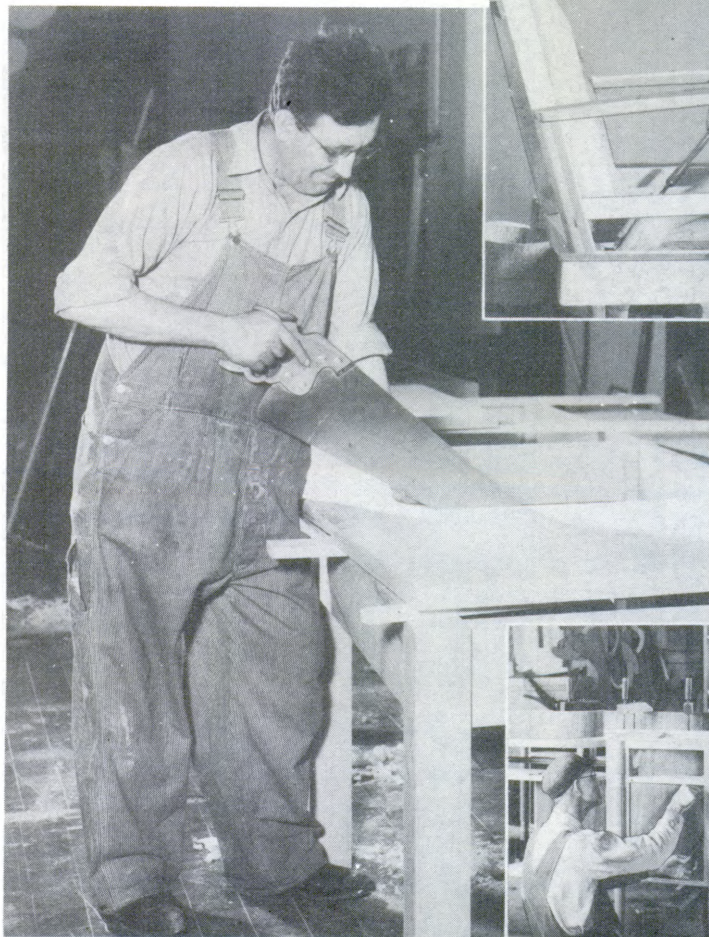
SPINDLE WOOD-CARVER

STAIR BUILDER

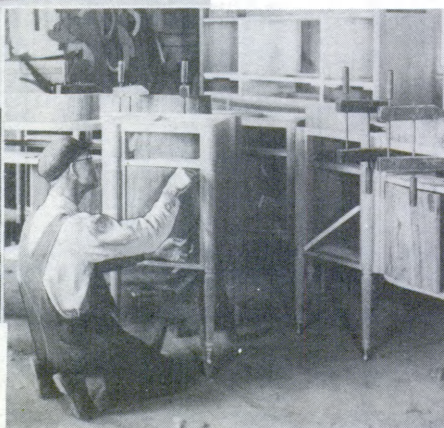
WOOD PATTERNMAKER

WOOD TURNER

· ASSEMBLING A CHAIR FRAME



BUILDING A TABLE



ASSEMBLING A RADIO CABINET

CABINETMAKER
BENCH CARPENTER
BENCH HAND

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Assembles and securely fastens together the parts of such wooden articles as cabinets, mantels, wainscoating, and other millwork, performing skilled hand woodworking tasks to fit and finish the parts and to make neat, strong joints. Uses such hand tools as the saw, plane, and chisel to make well fitted and workmanlike joints and attractively finished surfaces. May operate any or all of the more common woodworking machines, such as jointer, mortise machine, and variety saw, where their use will expedite production without appreciably diminishing quality.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any worker familiar with all of the phases of wooden article fabricating.

Other relationships: This job may be specialized and divided into four jobs entitled DOOR MAKER, FRAME MAKER, SASH MAKER, and CABINETMAKER, according to the product made.

The duties of STAIR BUILDER or any assembling job may be added to this job.

Specialized Qualifications

Extensive experience at fine woodworking required.

Careful and painstaking workman desirable, because the quality of cabinet work is largely determined by the precision with which it is executed.

Special Information

Determine: Whether work is principally hand or machine cabinetmaking.
Ownership of hand tools.

CARVING A BEDPOST



CARVING DECORATIVE TRIM FOR A CABINET

HAND WOOD-CARVER HAND CARVER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Cuts decorative designs and figures into the surfaces of such wooden articles as mantelpieces, panels, and staircases with chisel-like hand tools: Draws or traces outline of design on surface of wood; blocks out design roughly with chisels and gouges; completes the carving with delicate strokes of various types and sizes of rounded or V-shaped cutting tools.

This job requires a high degree of skill and hand-eye coordination in order to produce quality work. For some types of work the job may even require well developed sculptural and artistic abilities.

Relation to Other Jobs

Promotion from: SPINDLE WOOD-CARVER; WOOD-CARVER APPRENTICE.

Promotion to: CARVING DESIGNER; FOREMAN.

Other relationships: This job and the job of SPINDLE WOOD-CARVER may be combined into one job entitled WOOD CARVER.

The duties of WOOD TURNER may be added to this job.

Specialized Qualifications

Wood-carving apprenticeship usually required.

Should understand freehand drawing and modeling.

Ability to interpret blueprints and drawings is required in order to transfer and reproduce design on wood.

Special Information

Determine: Extent of creative ability required, such as drawing original designs for carvings.

Ownership of carving tools.

Type of articles carved, such as architectural decorations, objects of art, or furniture.

MILLMAN
MACHINE HAND
ALL AROUND MACHINE MAN

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Tools, adjusts, and operates any or all of the more common woodworking machines, such as boring, planing, sanding, sawing, and turning machines, preparing them to carry out successively all operations required to make complete wooden articles.

This is a skilled job requiring an experienced worker who is proficient in all phases of machine woodwork. Intelligent interpretation of drawings and specifications, accurate preparation of cutting tools, and precise set-up and efficient operation of woodworking machines to produce the desired product are the job essentials

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE. A WOODWORKING-MACHINE OPERATOR who has become experienced in the adjustment and operation of the woodworking machines may be promoted to this job.

Promotion to: FOREMAN; LAY-OUT MAN; WOODWORKING-MACHINERY SET-UP MAN.

Other relationships: This job may be added to the usual duties of FOREMAN.

Special Information

The qualifications for this job and for WOODWORKING-MACHINERY SET-UP MAN are very similar. The latter, however, is usually found in establishments where the work is divided among a number of machine operators, each of whom performs only a single function in the manufacture of a given article. The MILLMAN, on the other hand, is usually found in establishments where one worker performs all or most of the tasks required to make an article completely. Seldom are the two jobs found in the same establishment.

Determine: Specific machines used, such as planer, shaper and horizontal boring machine.

Type of products manufactured, such as building millwork, toys, or wooden novelties.

PAINTER (FINISHING)

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Measures and weighs ingredients and mixes them to prepare paint, stain, shellac, or varnish according to written or verbal instructions or to match samples; and brushes one or more coatings of the protective or decorative finish onto the surfaces of assembled wooden articles or millwork, cleaning brushes after use with a paint solvent, such as turpentine. May perform striping and freehand decorative painting. May smooth each coat of paint or varnish when dry with fine sandpaper.

Working Conditions

The worker is subject to discomfort caused by paint fumes.

Long continued work with paint may result in lead poisoning.

Relation to Other Jobs

Promotion from: PAINTER (PRIMING); SPRAY PAINTER.

Promotion to: FOREMAN.

Other relationships: The duties of DIPPER or SPRAY PAINTER may be added to this job.

This job and the job of PAINTER (PRIMING) are frequently combined into one job entitled FINISHER.

This job and the jobs of DIPPER, PAINTER (PRIMING), and SPRAY PAINTER may be combined into one job entitled PAINTER.

Specialized Qualifications

Ability to do freehand decorating and striping desirable.

Ability to mix and match paint may be required.

Special Information

Determine: Amount of freehand decorating and striping performed.

Extent of artificial graining.

Type of products painted, such as millwork, novelties, and toys.

Amount of mixing and matching of paints required.

CARVING ON A SINGLE-SPINDLE CARVING MACHINE



SPINDLE WOOD-CARVER SPINDLE CARVER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Carves artistic and decorative designs in the surface of such wooden articles as mantelpieces, panels, and staircases, by skillfully pressing and guiding the work against the rapidly rotating cutter of a carving machine to produce a design of the desired outline and depth; selects and installs cutters of the proper shape and size according to the demands of the work. May draw or trace outline of design on wood.

Considerable experience is required for this type of carving, since the machine merely eliminates the slow and laborious work of hand carving but does not replace the skill and judgment of the worker.

Equipment

Single-spindle carving machine: A machine containing a rotary shaft (spindle) to which can be attached various cutting tools for carving designs in wood. The machine is simple, consisting of a base and a spindle. The base is a heavy casting which supports the spindle bearings. The spindle is a slender tapered shaft, the small end of which is either threaded to receive screw-threaded cutters, or hollow for the insertion of cutter shanks which are locked in place with a setscrew.

Relation to Other Jobs

Promotion from: AUTOMATIC CARVING-MACHINE OPERATOR; SWING-TYPE LATHE OPERATOR; WOOD-CARVER APPRENTICE.

Promotion to: FOREMAN; HAND WOOD-CARVER.

Other relationships: This job and the job of HAND WOOD-CARVER may be combined into one job entitled WOOD CARVER.

The duties of AUTOMATIC CARVING-MACHINE OPERATOR or WOOD TURNER may be added to this job.

Specialized Qualifications

Wood-carving apprenticeship usually required.

Should understand freehand drawing and modeling.

Ability to interpret blueprints and drawings is required in order to reproduce design in wood.

STAIR BUILDER STAIR MAN

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Lays out staircases to fit stair openings as shown on architectural plans and prepares the necessary parts for assembly.

Work Performed

1. Calculates number and dimensions of stair treads and risers (vertical boards between treads) and the angle at which they are set in the side supporting boards (stringers).
2. Obtains material from which to construct staircase and lays out lines that indicate where saw cuts and grooves (rabbets or housings) are to be made. Saws treads, risers, stringers, handrails, and balusters (vertical supports for handrails) to length and correct angle by hand or with variety saw.
3. Cuts rabbets for treads and risers in stringers on a routing machine or with a portable router: clamps a template carefully on stringer, places stringer in correct position on router table, and cuts away wood through openings in template; or places stringer on workbench and guides portable router over it by hand to route wood through template openings.
4. Temporarily assembles staircase, performing any planing, chiseling, or sandpapering required to make the various parts fit. Numbers the parts to aid in reassembling the staircase, and takes it apart for shipment.

Equipment

Router: A special, vertical boring machine for cutting variously shaped grooves, holes, or hollows in wood. It consists of a vertical column, a vertical shaft (spindle) to which rotary cutter (bit) can be attached, and an adjustably mounted table upon which the work is supported. Work is placed on the table, which is elevated until the bit penetrates to the required depth. The work is then slid about on the table, causing the bit to follow the desired path in cutting away wood.

Portable router: A small electric machine, consisting of a motor and an extended shaft for the attachment of bits, which the worker holds and guides over the surface of the work by hand to accomplish the work of the router.

Relation to Other Jobs

Promotion from: CABINETMAKER HELPER; SASH, DOOR, AND FRAME ASSEMBLER; WOODWORKER APPRENTICE.

Promotion to: CABINETMAKER; FOREMAN.

Other relationships: This job may be added to the usual duties of CABINETMAKER.

The duties of this job may be divided among several woodworkers or machine operators, a DRAFTSMAN who works out the required dimensions, and a LAY-OUT MAN who marks the necessary guide lines and reference lines on the various pieces.

Specialized Qualifications

Familiarity with shop applications of mathematics, including fractions, decimals, and simple algebra, required.

Ability to use carpenter's tools and woodworking machines skillfully and to interpret blueprints required.

Woodworking apprenticeship is usually required.

Special Information

Determine: Whether this worker or LAY-OUT MAN figures the spacing and dimensions of steps and the pitch (slope) of stairs, and lays out work.

Ownership of hand tools.

CHECKING THE MEASUREMENTS OF WOOD PATTERNS



WOOD PATTERNMAKER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Constructs wooden patterns, according to blueprints and specifications, to be used in preparing molds (hollows in sand) into which molten metal is poured to make rough, metal objects (castings). Uses woodworking machines and hand tools in shaping, surfacing, and assembling the patterns.

While the job requires great proficiency in woodworking, the worker should also have knowledge concerning the construction of sand molds in foundries, the behavior of various metals when cast in sand, the necessary allowances for waste in surfacing metal castings in machine shops, and arithmetic sufficient to compute the ratios of pattern dimensions to those of the finished machine parts.

Relation to Other Jobs

Promotion from: PATTERNMAKER APPRENTICE.

Promotion to: FOREMAN.

Other relationships: In large establishments the duties of this job are frequently divided into three parts, the design work being added to the usual duties of MECHANICAL ENGINEER, the dimensional drawing work being added to the usual duties of DRAFTSMAN, and the wood-working performed by this worker.

Specialized Qualifications

Complete trade school training, extensive patternmaking apprenticeship, or high school education supplemented by foundry experience required.

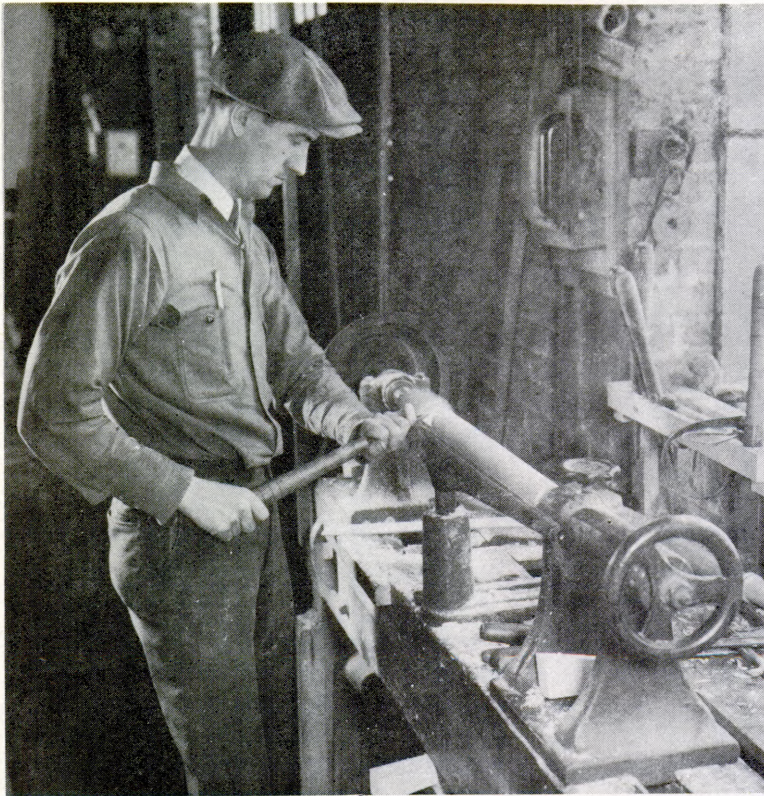
Considerable experience is necessary to gain familiarity with the difficulties encountered in tamping sand tightly around all surfaces of the pattern and withdrawing it from the mold, and with the degree of shrinkage for various metals and alloys. Machine shop experience is desirable in order to visualize the completely finished article for which a pattern is made. Mechanical drawing ability is desirable in order to eliminate possibilities of inaccurate patternmaking caused by careless lay-out and designing.

Special Information

Determine: Type of patterns made, large, small, simple, or complex.

Kind of metal for which patterns are made.

SHAPING STOCK ON A WOOD-TURNING LATHE



CLOSE-UP OF TOOL IN WORKING POSITION

WOOD TURNER WOOD-LATHE OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE CRAFT JOBS

Job Summary

Shapes wooden objects of circular cross section, such as stair spindles and porch columns, by pressing variously shaped chisel-like hand tools against the surface of each object which is supported and rotated about its axis in a lathe. Marks the center points about which the work is to be turned and mounts the work in the lathe, either by pressing sharpened metal points (lathe centers) into the ends or, when working on relatively short pieces of large diameter, by fastening them with screws to a faceplate on the lathe spindle.

Since the cutters are directed almost entirely freehand, considerable skill and dexterity are required.

Equipment

Wood-turning lathe: A machine in which wood, held and rotated between pivots (lathe centers), is worked to shapes of variable, circular, cross section with chisel-like hand tools. The lathe consists of a frame (bed), a headstock fixed upon one end of the bed, a tailstock that slides on guides on the bed, and an adjustable bracket (tool rest). The headstock supports a power-rotated shaft (spindle) to which a spur center or a faceplate, used to support the work, can be fastened. The tailstock, which slides along the bed, supports a stationary shaft, bearing a conical piece (center) that is forced into the work, and with the spur on the headstock supports the work and gives it rotary motion about its axis. The tool rest can be clamped in various positions to afford support for the cutting tool.

Relation to Other Jobs

Promotion from: SWING-TYPE LATHE OPERATOR; VARIETY-LATHE OPERATOR; WOODWORKER APPRENTICE.

Promotion to: FOREMAN.

Other relationships: This job may be added to the usual duties of HAND WOOD-CARVER or SPINDLE WOOD-CARVER.

The duties of HAND SANDER may be added to this job.

Specialized Qualifications

Woodworking apprenticeship usually required.

Knowledge of the working characteristics of a variety of woods required.

Special Information

Determine: Whether worker will be required to sharpen carving tools.

Ownership of hand tools.

THE WOODWORKING MACHINE JOBS

INTRODUCTION

These are the jobs in which the majority of workers in any large, mechanized woodworking establishment are employed. The workers are semiskilled machine operators who, with their helpers and the semiskilled group of Assembling and Finishing workers, and under the management of the Planning and Regulating workers, carry out the major proportion of a plant's production.

The transfer of any of these workers to similar work in the Furniture Manufacturing Industry is easily accomplished with little additional training. However, transfers to other industries, except at similar tasks in maintenance departments, is not generally feasible without an adequate training period. With such supplementary training, however, it is not impossible to shift an efficient woodworking machine operator to a machine operating job in another industry, since he is as much a general machine operator as he is a woodworker.

Within the Lumber and Lumber Products Industries this group, because of its size and important functions, is generally related to all other work groups. There is, however, an especially close relationship between these workers and the Woodworking Machine Operator Helpers, over whom they maintain constant and direct supervision. The next most closely related jobs are those of the Assembling and Finishing and the Planning and Regulating Groups, the former involving the assembly of parts prepared by the machine operators, and the latter aiding production through efficient setting up of machines and the planning and laying out of work.

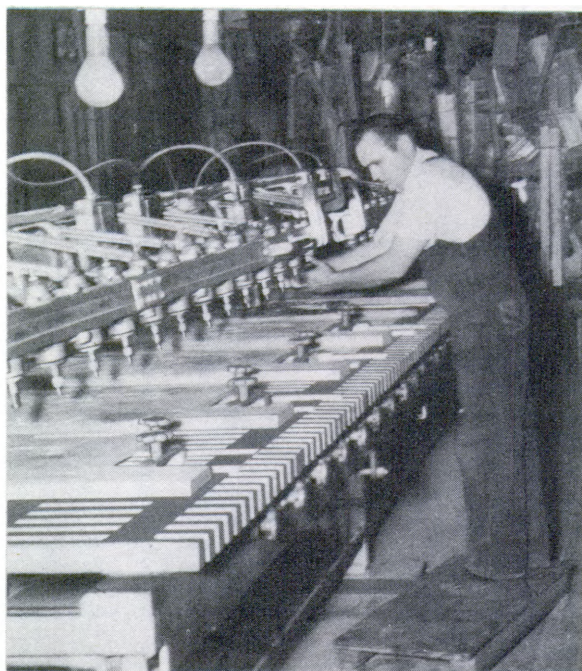
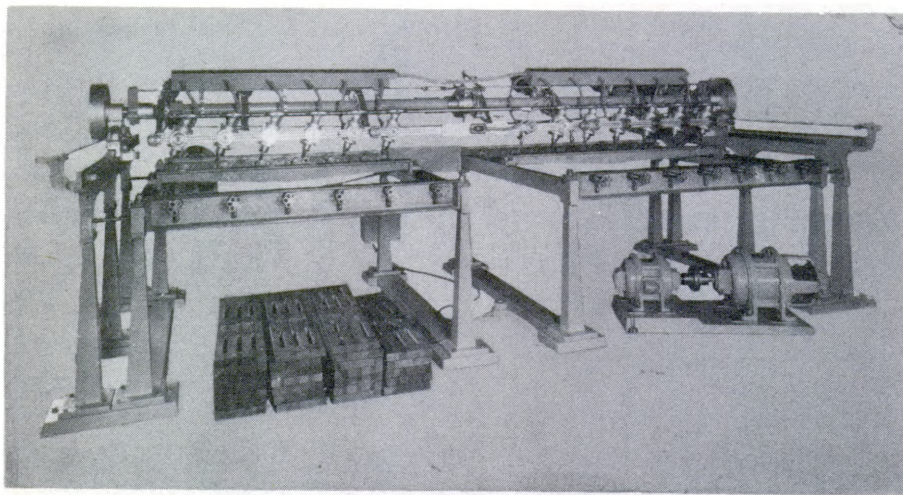
The Woodworking Machine Jobs are the most elastic in the industry, being broken down, combined, and transferred to meet the production needs of the individual establishment in which they are found.

A worker must have had some training with woodworking machines before he is competent to perform the duties of any of these jobs efficiently, even though long experience and training is not a prerequisite for all of them. This experience is required as much for the workers' safety as for working efficiency, because all of these jobs subject the workers continuously to the hazard of moving knives and saws which too frequently injure and maim the hands of careless operators.

JOB DESCRIPTIONS

AUTOMATIC CARVING-MACHINE OPERATOR	MATCHER OR MOLDER OPERATOR
BAND SCROLL-SAW OPERATOR	MULTIPLE-SPINDLE BORING-MACHINE OPERATOR
BELT SANDER	PANEL-RAISER OPERATOR
CHAIN MORTISE-MACHINE OPERATOR	PLANER OPERATOR
CHUCKING-MACHINE OPERATOR	POCKET CUTTER OPERATOR
COMBINATION SANDER	PULLEY-MORTISE-MACHINE OPERATOR
CUT-OFF-SAW OPERATOR	RESAW OPERATOR
CYLINDER SANDER OPERATOR	RIPSAW OPERATOR
EXCELSIOR-MACHINE OPERATOR	ROUNDING-MACHINE OPERATOR
EXCELSIOR MILL BALER	ROUTER OPERATOR
FLEXIBLE-ARM SANDER OPERATOR	SCRAP SAWYER
GLUE-JOINTER OPERATOR	SHAPER OPERATOR
HOLLOW-CHISEL MORTISE-MACHINE OPERATOR	STICKER OPERATOR
HORIZONTAL BORING-MACHINE OPERATOR	SWING-TYPE LATHE OPERATOR
JIGSAW OPERATOR	TENON-MACHINE OPERATOR
JOINTER OPERATOR	TIMBER-SIZER OPERATOR
KNOT SAWYER	TURNING SANDER OPERATOR
LOG CUTTER	VARIETY-LATHE OPERATOR
	VARIETY-SAW OPERATOR
	VERTICAL BORING-MACHINE OPERATOR

AUTOMATIC WOOD-CARVING MACHINE WITH TWELVE CUTTERS



SETTING UP AN AUTOMATIC WOOD-CARVING MACHINE

Wood-Carving-Machine Operator 6-33.366

AUTOMATIC CARVING-MACHINE OPERATOR
MULTIPLE-SPINDLE WOOD-CARVER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS*Job Summary*

Mounts and adjusts blanks (blocks of wood) in supports of automatic wood-carving machine, and guides tracing point over surface of carved model, the movements of the finger being reproduced by several cutters which act on the surfaces of the blanks to produce several identically carved wooden articles simultaneously.

Work Performed

1. Selects several carving cutters of appropriate size and shape, inserts them in chucks on end of machine spindles, and locks them in place; alines and clamps model in machine bed under finger; places blanks in individual carving beds of machine, and alines and clamps them in correct position adjacent to each cutter.
2. Starts machine, and turns handwheel or depresses pedal to raise rack, which supports carving beds, to desired height for carving; moves carriage, which supports carving spindles, into position so that a cutter is located over each blank.
3. Traces over design of model with tracing point, causing cutters to duplicate its movements and carve out the design of the model on each of the blanks; inserts new bits of proper type from time to time as work progresses to accomplish carving.

Equipment

Automatic wood-carving machine: A machine that carves a prescribed design simultaneously on several pieces of wood with coordinated cutters which are guided by a master spindle that is passed over the surface of a model. The machine consists essentially of a metal frame upon which from one to ten cutters are balanced, and a rack. The rack is composed of a number of metal or wooden beds which are interconnected in such a manner that they can be moved to one side or the other to adjust their position appropriately for the length of the article to be carved. These beds support the model and the blanks in clamps or between centers similar to those of a lathe. The frame, which supports the follower and the chucks containing the rotating carving cutters, is adjustable horizontally or vertically, allowing the cutters to undercut to about 45°. The cutters are linked together by arms and pivots so that, as the follower is guided over the surface of the model, its motion is reproduced by the cutters and exact counterparts of the model are made. While

the follower is simply a metal point, the cutters are rotating tools that are supported in chucks, mounted on individual motors or shafts.

Relation to Other Jobs

Promotion from: WOOD-CARVER APPRENTICE.

Promotion to: SPINDLE WOOD-CARVER.

Other relationships: This job may be added to the usual duties of SPINDLE WOOD-CARVER.

Specialized Qualifications

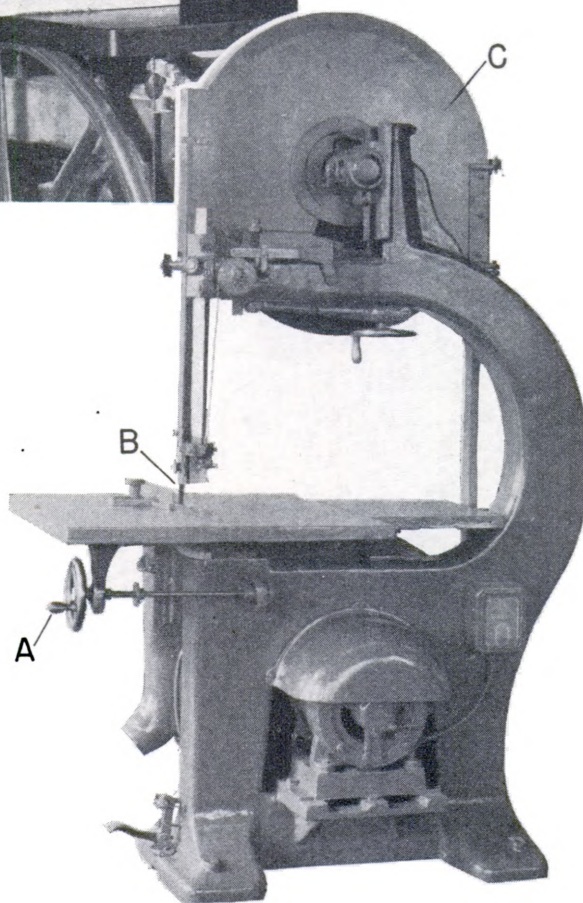
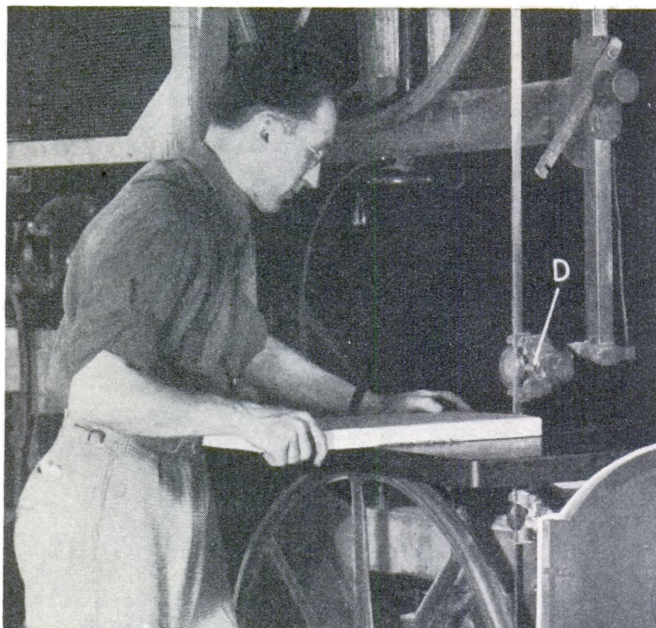
General familiarity with wood carving gained through work at a wood carving establishment is desirable.

Special Information

In some establishments this worker may merely operate the machine, the set-up being made by another workman.

Determine: Whether worker will sharpen his own carving cutters or merely install sharp ones.

BAND SCROLL-SAWS



- A. TABLE-TILT CONTROL.
B. SAW BLADE.
C. UPPER BAND-WHEEL
HOUSING.
D. MOVABLE SAW GUIDE.

BAND SCROLL-SAW OPERATOR
BAND-SAW-MACHINE OPERATOR
BAND-SAW MAN
BAND-SAW OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Slides small pieces of wood, gripped with both hands, along top of table and manipulates them against the blade of a band scroll-saw to cut out curved or irregular designs in the wood.

Work Performed

1. Draws, traces, or pastes designs on piece of wood to be cut; nails several pieces together when same design is to be cut in all.
2. Manually adjusts height of saw guide above saw table so that wood will just pass under guide, and fastens it with setscrew; tilts table to required angle, when it is desired to bevel edges of wood, and clamps it in position.
3. Presses piece of wood against top of table with both hands and shoves it against rapidly moving saw blade, guiding and turning the work to follow the marked outline while feeding work at rate best suited to sawing the particular kind of wood used.

Equipment

Band scroll-saw: A power saw equipped with a narrow, toothed band (saw blade) especially adapted to cutting along curved or irregular lines. It consists essentially of an upright frame, an endless saw blade, and two wheels that support and drive the saw blade, mounted one above the other in the frame. A table upon which the work is supported is mounted in the frame in such position that the saw blade passes downward through a slot in its surface. A movable saw guide above the table prevents the saw blade from twisting or vibrating.

Working Conditions

The principal hazard is danger of abrasions and cuts from accidental contact with the saw blade.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE.

Transfer from and to: JIGSAW OPERATOR.

Other relationships: The duties of CUT-OFF-SAW OPERATOR or RIP-SAW OPERATOR may be added to this job.

This job and the jobs of BAND-RESAW OPERATOR and BAND-RIP-SAW OPERATOR may be combined into one job entitled BAND SAWYER.

This job and the job of JIGSAW OPERATOR may be combined into one job entitled SCROLL-SAW OPERATOR.

This job may be added to the usual duties of SHAPER OPERATOR.

Specialized Qualifications

Woodworking apprenticeship may be required.

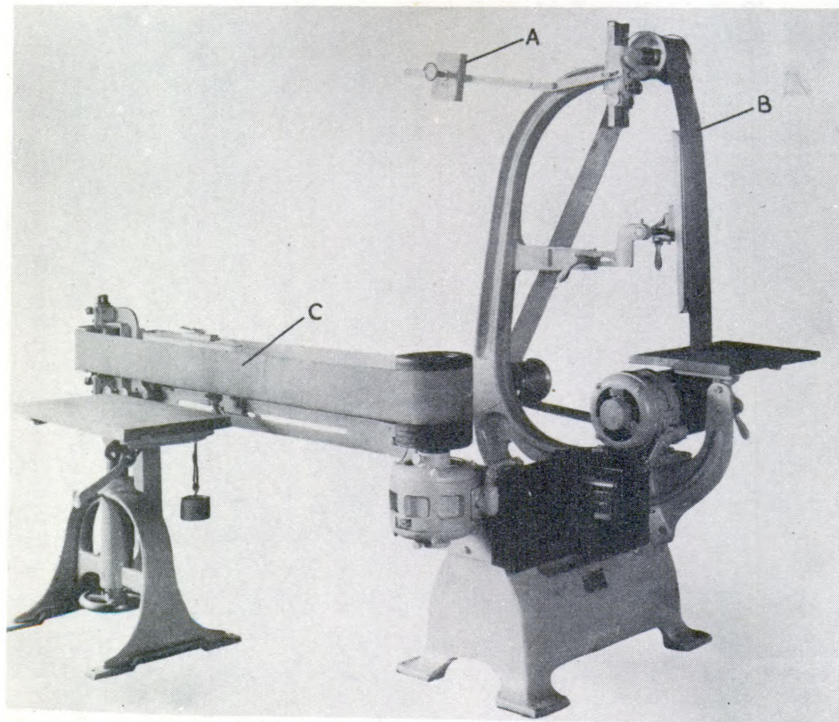
General woodworking experience required.

Should have a general knowledge of the working qualities of wood.

Special Information

Determine: Whether worker will be required to sharpen and set saws.

VARIETY BELT SANDER



A. IDLER PULLEY COUNTERWEIGHT.

B. VERTICAL BELT.

C. HORIZONTAL BELT.

**HAND-BLOCK AND BELT SANDER**

BELT SANDER
BELT SANDER OPERATOR
BELT SANDING-MACHINE OPERATOR
FLEXIBLE-BELT SANDER OPERATOR
FLEXIBLE-BELT SANDING-MACHINE OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS*Job Summary*

Smooths and cleans the plane surfaces of woodstock on a belt sander, either by pressing the moving sandpaper belt, with a hand block, against the stock which is supported on a table below, or by resting the stock on the machine table and manually forcing it against the sanding belt.

Work Performed

1. When using a hand block and belt sander: Adjusts belt tension by moving idler pulley against belt; places stock against stop on table, adjusts height of table beneath belt by handwheel, and starts machine; simultaneously presses belt against surface of stock with hand block, sweeps block back and forth, and moves table back and forth at right angles to belt, thus sanding entire surface to a smooth finish.
2. When using edge-belt, adjustable-belt, or upright-belt sander: Moves idler pulley against sanding belt to adjust belt tension, raises or lowers table to height best suited for work to be done, and starts machine; rests stock on table in front of sanding belt and forces it, gripped with both hands, against belt until it is smoothed to desired finish.
3. Replaces worn belts or installs ones of appropriate coarseness as work requires, by slipping ends of belt over machine pulleys; cleans machine with cloths or compressed air and oils it periodically.
4. May repair worn sanding belts with glue and make new belts by matching and gluing together ends of strips of sandpaper.

Equipment

Belt sander: A class of machines all of which embody the principal of an endless loop of sandpaper running over pulleys that are placed to enable smoothing of wooden stock against the moving abrasive surface conveniently. Several of the more common belt sanders are described below.

The hand-block and belt sander utilizes an endless sandpaper belt that moves horizontally across an adjustable, flat table. The worker presses the belt against the work with a wooden block held against the smooth side of the sandpaper.

The edge-belt sander departs from the basic design in that the belt travels vertically and that the object being sanded is supported on a horizontal table and pressed against the downward moving abrasive surface.

The adjustable-belt sander is designed to permit alterations in the path of the sandpaper belt by the insertion of additional guide pulleys or guide forms to make the belt more adaptable to sanding peculiar or specific shapes.

Working Conditions

The work is carried on in a sawdust-laden atmosphere and the worker is subject to injury from contact with the sandpaper belt.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; a laborer.

Promotion to: FOREMAN.

Transfer from and to: COMBINATION SANDER; CYLINDER SANDER OPERATOR; FLEXIBLE-ARM SANDER OPERATOR; HAND SANDER; TURNING SANDER OPERATOR.

Other relationships: The duties of this job may be specialized and entitled ADJUSTABLE-SANDER OPERATOR, EDGE-BELT SANDER, HAND-BLOCK AND BELT SANDER, or UPRIGHT-BELT SANDER, according to the type of machine used.

This job and any or all of the jobs of COMBINATION SANDER, CYLINDER SANDER OPERATOR, FLEXIBLE-ARM SANDER OPERATOR, and TURNING SANDER OPERATOR may be combined into one job entitled SANDER or SANDER HAND.

This job may be added to the usual duties of any other woodworking machine operator.

Specialized Qualifications

General experience in or around woodworking establishments required.

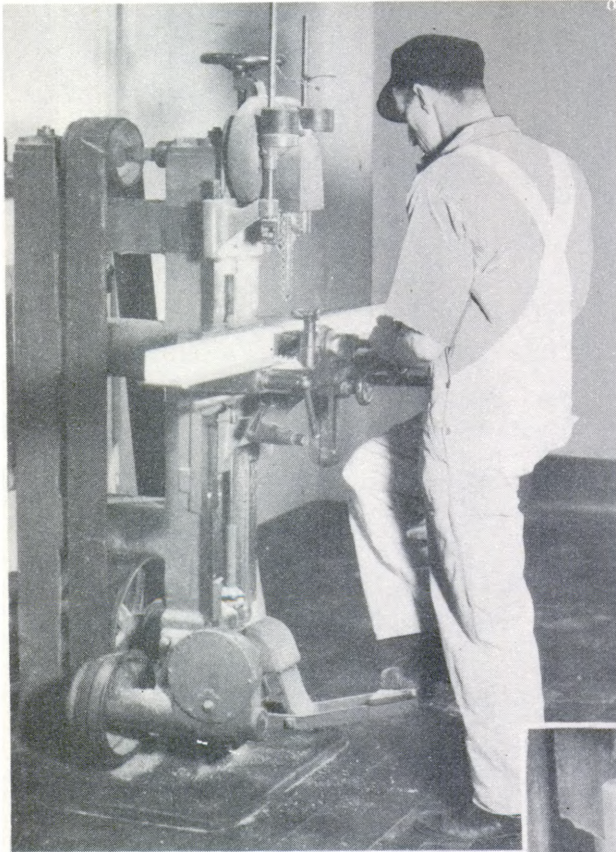
Special Information

Determine: Type of belt sander operated, such as edge-belt, hand-block and belt, or upright belt.

Whether worker will repair and make sanding belts.

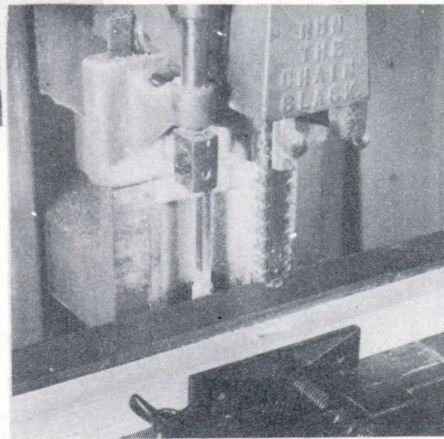
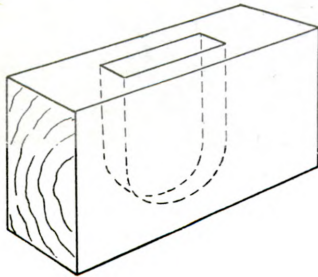
Other machines operated, such as combination sander or turning sander.

CHAIN MORTISE MACHINE



- A. CHAIN TENSION CONTROL.
- B. CHAIN SAW.
- C. STOCK CLAMP.
- D. FEED CONTROL PEDAL.
- E. TABLE ADJUSTMENT.

PHANTOM VIEW OF A MORTISE

CLOSE-UP OF CHAIN SAW
AND MORTISE

**CHAIN MORTISE-MACHINE OPERATOR
CHAIN-SAW MORTISER OPERATOR
CHAIN MORTISER OPERATOR**

LUMBER AND LUMBER PRODUCTS

**WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS**

Job Summary

Clamps such wooden articles as door and window sashes in table vise of chain mortise machine, adjusts position of table by handwheel to center stock under chain saw, and moves and clamps table stop in position to limit depth to which saw enters wood; starts machine and depresses pedal to raise table and force revolving chain saw into the stock, thus cutting a rectangular mortise (slot); selects chain saws to cut mortises of specified size and installs them on sprockets of machine. May sharpen saws on a chain saw grinder.

Equipment

Chain mortise machine: A machine that cuts rectangular holes (mortises) in wooden pieces with a revolving, sharp-toothed chain saw to prepare them to accommodate the ends of other pieces (tenons) in the making of interlocking joints. The essential feature of the machine is an upright metal column supporting a rotary chain saw above a movable table. The endless chain of cutting teeth revolves vertically at high speed around a sprocket on the end of an adjustable, vertical bar. The table, which supports the piece, is laterally adjustable and is raised vertically by a power-rotated screw to force the work into contact with the revolving chain saw. This movement of the table is controlled by a pedal and vertical table stops, the latter limiting the rise of the table and, hence, the depth of the mortise. A stock clamp or table vise holds the piece firmly in place on the table beneath the saw.

Relation to Other Jobs

Promotion from: SASH, DOOR, AND FRAME ASSEMBLER HELPER; TENON-MACHINE OFF-BEARER; WOODWORKER APPRENTICE.

Promotion to: FOREMAN; LAY-OUT MAN; WOODWORKING-MACHINERY SET-UP MAN.

Transfer from and to: HOLLOW-CHISEL MORTISE-MACHINE OPERATOR; POCKET CUTTER OPERATOR; PULLEY-MORTISE-MACHINE OPERATOR; TENON-MACHINE OPERATOR.

Other relationships: This job and the job HOLLOW-CHISEL MORTISE-MACHINE OPERATOR, JOINTER OPERATOR, MATCHER

OR MOLDER OPERATOR, PLANER OPERATOR, or TENON-MACHINE OPERATOR may be combined into one job.

The setting up of the machine may be performed by a WOODWORKING-MACHINERY SET-UP MAN.

The duties of MULTIPLE-SPINDLE BORING-MACHINE OPERATOR may be added to this job.

Specialized Qualifications

Ability to interpret blueprints required.

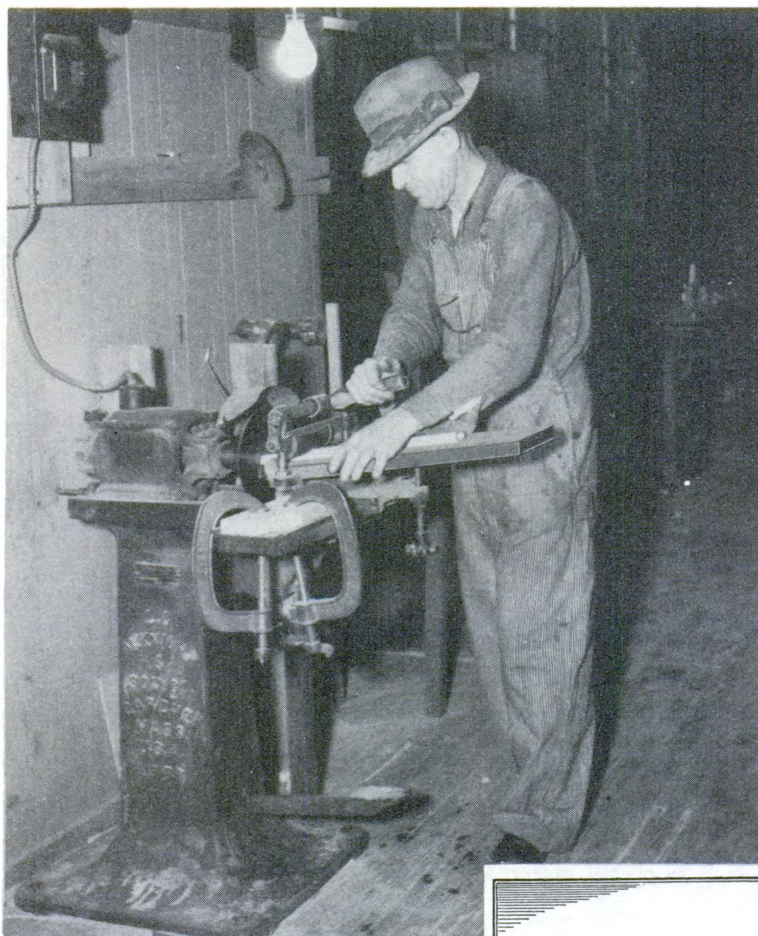
Should be able to identify and know the working characteristics of the more common woods.

Special Information

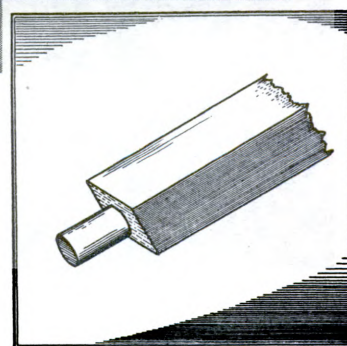
Determine: What other machines are operated, such as pocket cutter, pulley mortiser, or tenoner.

Whether worker will be required to sharpen the chain saws.

CHUCKING MACHINE



ROUND TENON PRODUCED
ON A CHUCKING MACHINE



CHUCKING-MACHINE OPERATOR**LUMBER AND LUMBER PRODUCTS****WOODEN ARTICLE FABRICATING****THE WOODWORKING MACHINE JOBS***Job Summary*

Rapidly places such wooden articles as tool handles and long pin tenons, one after another, on guide trough of chucking machine and pushes them by hand into hollow rotating cutter head which rounds, tapers, or otherwise shapes the ends to circular cross section; or clamps articles in carriage vise and pushes it by hand or advances it by mechanical control to feed stock into cutter head. As work requires, installs and fastens cutter head of proper size and shape in machine, and sets stop to limit distance stock will enter cutter head; adjusts height of guide trough or vise by hand or handwheel so that work will be centered in the chuck when being cut.

Equipment

Chuckling machine: A semiautomatic turning machine that works rounded or tapered ends on such articles as implement handles or stair landing posts. The machine consists of a frame (bed), a headstock, and a carriage. The headstock, which is fixed upon the end of the bed, supports a shaft (spindle) to which is attached a hollow cutter head equipped with inward, projecting cutter knives. The carriage travels along guides on the bed and supports a trough or vise designed to hold the work and advance it into the rapidly rotating cutter head.

Relation to Other Jobs

Promotion from: **WOODWORKER APPRENTICE**; any woodworking machine operator helper.

Transfer from and to: **ROUNDING-MACHINE OPERATOR**; **SWING-TYPE LATHE OPERATOR**; **VARIETY-LATHE OPERATOR**.

Other relationships: This job may be added to the usual duties of **ROUNDING-MACHINE OPERATOR**.

Specialized Qualifications

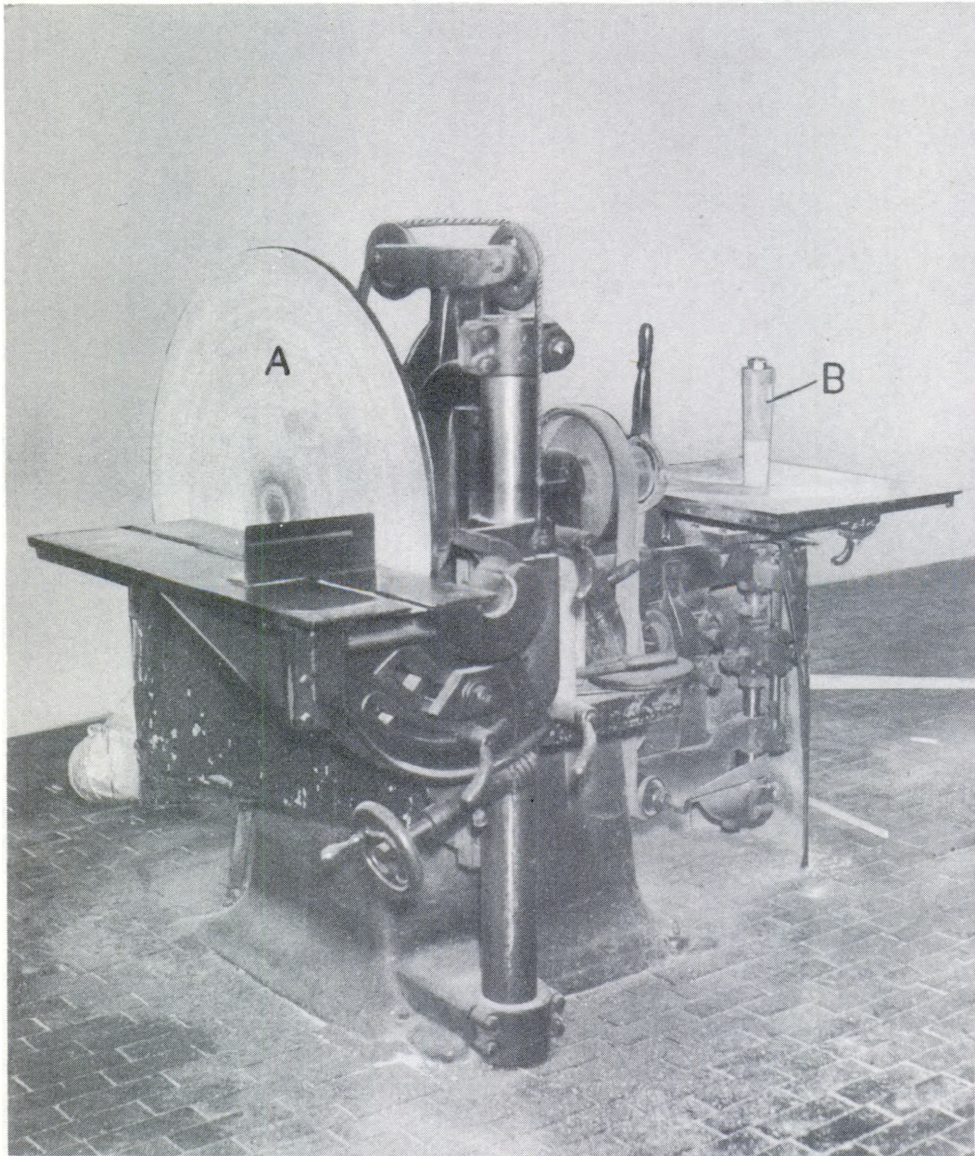
General woodworking experience is desirable.

Ability to read and interpret blueprints desirable.

Special Information

In some establishments the chucking machine may be set up by another worker, in which case this job involves only the repetitive task of placing stock in and removing it from the machine.

COMBINATION SANDER



A. ABRASIVE DISK.
B. ABRASIVE SPINDLE.

COMBINATION SANDER COMBINATION-SANDER OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Grasps small wooden articles firmly with both hands, rests them upon table of sanding machine, and forces them against the rotating disk, drum, or spindle to smooth their plane, curved, or irregular surfaces to desired finish.

Work Performed

1. Replaces sandpaper on sanding forms by cutting sandpaper to correct shape with knife or shears and gluing it to surface of forms; adjusts height of table to position stock in correct relation with sanding form; tilts table to proper angle when edges of articles are to be beveled and clamps it in place.
2. Starts machine, presses work against table with both hands, and slides it into contact with rotating sanding form; moves work laterally back and forth or turns and guides it around from, depending on whether surface being sanded is plane or curved.
3. Cleans machine with cloths or compressed air, and oils it periodically.

Equipment

Combination sander: A machine that provides a variety of abrasive surfaces for sanding plane, curved, or irregularly shaped wooden objects. Machines of this type usually consist of a combination of disk and spindle, or a disk and drum, an adjustable table for each of those elements. Sanding is accomplished by manual pressure of the table-supported article against one of the rotating forms.

Frequently several separate machines, such as disk sander, spindle sander, and drum sander, are used to accomplish this job. When thus separated the machines may be made more intricate and may be semiautomatic. For instance, a drum sander may have several sanding drums as well as pressure and feed rollers, which automatically feed and sand the stock.

Working Conditions

The work is carried on in a sawdust-laden atmosphere and the worker is subject to abrasions on hands from contact with the moving abrasive surfaces.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; a laborer.

Promotion to: FOREMAN.

Transfer from and to: BELT SANDER; CYLINDER SANDER OPERATOR; FLEXIBLE-ARM SANDER OPERATOR; HAND SANDER; TURNING SANDER OPERATOR.

Other relationships: The duties of this job may be specialized and entitled: DISK SANDER, DISK AND DRUM SANDER, DRUM SANDER, DISK AND SPINDLE SANDER, SPINDLE SANDER, or UNIVERSAL SANDPAPERING-MACHINE OPERATOR, according to the type of equipment used.

The duties of VERTICAL BORING-MACHINE OPERATOR may be added to the usual duties of any other woodworking machine operator.

This job and any or all of the jobs of BELT SANDER, CYLINDER SANDER OPERATOR, FLEXIBLE-ARM SANDER OPERATOR, HAND SANDER, and TURNING SANDER may be combined into one job entitled SANDER or HAND SANDER.

Specialized Qualifications

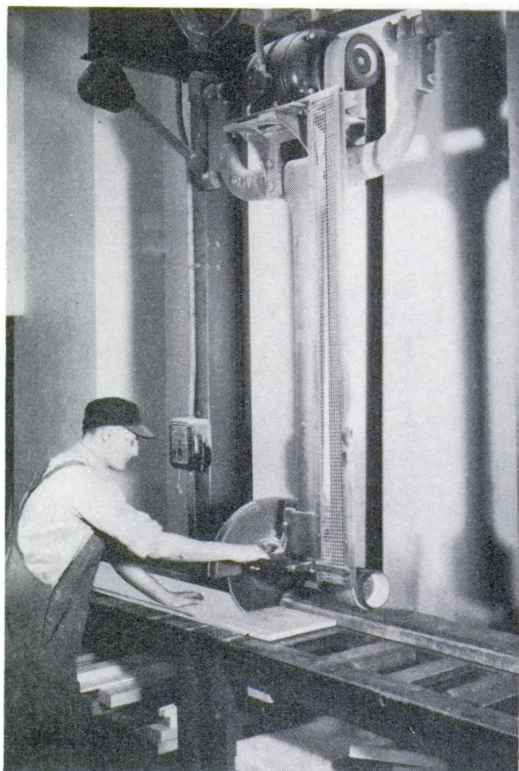
General experience at woodworking required.

Special Information

Determine: Type of sander operated, such as combination disk and spindle, or separate disk, drum, and spindle sanders.

Other machines operated, such as a belt sander or cylinder sander.

CUTTING A BOARD TO LENGTH ON A
SWINGING CUT-OFF SAW



Swinging-Cut-Off-Saw Operator 6-33.214
 Also covers: Cut-Off-Saw Operator, Treadle Operated 6-33.214

CUT-OFF-SAW OPERATOR
 CUT-OFF SAWYER
 CROSSCUT-SAW OPERATOR
 CROSSCUT SAWYER
 TRIMMING-SAW OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
 THE WOODWORKING MACHINE JOBS

Job Summary

Places pieces of lumber, one after another, in correct position on table of cut-off saw, and pulls handle or depresses pedal to swing rotating saw blade across grain of lumber and cut it to length.

Work Performed

1. Places piece of lumber on saw table with one end projecting beyond circular saw blade, and starts machine; presses lumber against table with one or both hands and pulls handle or depresses pedal to swing saw across and through wood.
2. Slides lumber along table until specified length projects beyond saw, measuring it with hand rule or by setting table stop at correct point, and makes second cut.
3. May replace saw blade as work requires, loosening and removing blade from mandrel (shaft), and installing and bolting a new blade in its place.

Equipment

Swinging cut-off saw: A circular saw that is suspended above the cut-off table in an arm-like framework that permits its being drawn across the lumber with a pendulum-like motion. A graduated, raised guide strip at the rear of the bench permits accurate measurement, and a stop permits adjustment of the stop into position for cutting to specified lengths.

Treadle-operated cut-off saw: A circular saw for cutting lumber to length. It differs from the swinging cut-off saw in that the saw blade is supported beneath the cut-off bench in such a manner that pressure on a treadle causes it to swing upward and forward through a slot in the bench, severing the lumber.

Working Conditions

The worker is subject to loud, monotonous noise from the machine and to flying sawdust.

The principal hazard is danger of cutting or amputating hands and fingers by accidental contact with saw blade.

Relation to Other Jobs

Promotion from: LOG CUTTER; SCRAP SAWYER; WOODWORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: KNOT SAWYER; RIPSAW OPERATOR; VARIETY-SAW OPERATOR.

Other relationships: This job and the job of RIPSAW OPERATOR may be combined into one job entitled BILL CUTTER.

The duties of this job may be specialized and entitled SWINGING CUT-OFF-SAW OPERATOR, TREADLE-OPERATED CUT-OFF-SAW OPERATOR, or TRIM AND TAIL SAWYER, according to the purpose for which the saw is used or the type of machine operated.

This job and the jobs of CIRCULAR-RESAW OPERATOR, CIRCULAR-RIPSAW OPERATOR, and VARIETY-SAW OPERATOR may be combined into one job entitled CIRCULAR-SAW OPERATOR.

This job may be added to the usual duties of any other woodworking machine operator when it is necessary to saw stock to desired length.

Specialized Qualifications

Woodworking apprenticeship may be required.

Should have a general knowledge of the grades and kinds of wood.

Special Information

Determine: Whether worker will sharpen and set saws.

**CYLINDER SANDER OPERATOR
AUTOMATIC BELT-SANDER OPERATOR
AUTOMATIC SANDER OPERATOR**

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Selects sandpaper belt of appropriate coarseness and guide collars of suitable size for cylindrical wooden objects to be sanded, and slips or bolts them in place on sanding machine; starts machine and rapidly feeds articles, one after another, into collar which automatically feeds and guides them through machine in contact with moving sanding belt that smooths their surfaces to desired finish; cleans machine with cloths or compressed air and oils machine periodically.

Equipment

Cylinder sander: A machine that automatically sandpapers the surfaces of cylindrical objects. The machine consists of one or more loops of sandpaper belting, two or more power-rotated pulleys on which the belts travel, and an automatic feeding device that rotates cylindrical objects against the moving sandpaper and simultaneously drags them across it to smooth their surfaces.

Working Conditions

The work is carried on in a sawdust-laden atmosphere and the worker is subject to injury from contact with the abrasive-covered belt.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; a laborer.

Promotion to: FOREMAN.

Transfer from and to: BELT SANDER; COMBINATION SANDER; FLEXIBLE-ARM SANDER OPERATOR; HAND SANDER; TURNING SANDER OPERATOR.

Other relationships: The duties of this job may be specialized and entitled DOWEL-SANDER OPERATOR, HANDLE-SANDER OPERATOR, or POLE-SANDER OPERATOR, according to the product sanded.

This job may be added to the usual duties of any other woodworking machine operator.

This job and any or all of the jobs of BELT SANDER, COMBINATION SANDER, FLEXIBLE-ARM SANDER OPERATOR, HAND SANDER, and TURNING SANDER OPERATOR may be combined into one job entitled SANDER or SANDER HAND.

Specialized Qualifications

General experience at woodworking required.

Special Information

In some plants the sander may be set up by another worker, in which case this job involves only the simple task of feeding stock into the machine.

Excelsior-Machine Operator 6-39.661

EXCELSIOR-MACHINE OPERATOR
EXCELSIOR MAKER
SHREDDING-MACHINE OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS*Job Summary*

Hand loads bolts of softwood into one or more excelsior making machines that are kept in constant operation, opening the feed rollers by depressing pedal, placing bolts between them, and releasing pedal to start shredding operation; periodically turns bolts over to present a new surface to cutter head that shaves off shreds of wood; removes bolts when they become too small to be cut efficiently and inserts new ones; greases, oils, and cleans machines periodically.

Equipment

Excelsior machine: A machine for cutting fine strips or shreds of wood from bolts (short logs) to make excelsior. A cutting head, fitted with a steel comb and knife, slides back and forth in a framework over the bolt of wood to cut off fine strips of wood fiber. Spiked or fluted feed rollers which can be moved apart by a pedal for loading the machine hold the bolt firmly in place and feed it gradually toward the comb and knife as the wood is shredded. Machine may be of two designs, one in which the bolt of wood is supported horizontally, and the other in which wood is supported vertically.

Working Conditions

Worker may cut or mangle his hands in the machine and may also be injured by flying chips.

Relation to Other Jobs

Promotion from: EXCELSIOR MILL LABORER.

Transfer to and from: EXCELSIOR MILL BALER.

Specialized Qualifications

Experience in or about an excelsior mill required.

Special Information

Determine: Type of excelsior machine operated, such as horizontal or vertical type.

EXCELSIOR MILL BALER**LUMBER AND LUMBER PRODUCTS****WOODEN ARTICLE FABRICATING****THE WOODWORKING MACHINE JOBS***Job Summary*

Packs excelsior into a machine that compresses it into bales. Threads baling wires or bands under wooden strips that have been placed around compressed bale, and twists or fastens wire ends together. Weighs bales and records weight on tally sheet.

Equipment

Baling machine: A machine in which a piston forces loosely packed excelsior, in a large steel receptacle, into a tightly compressed bundle for convenient storage or shipment.

Relation to Other Jobs

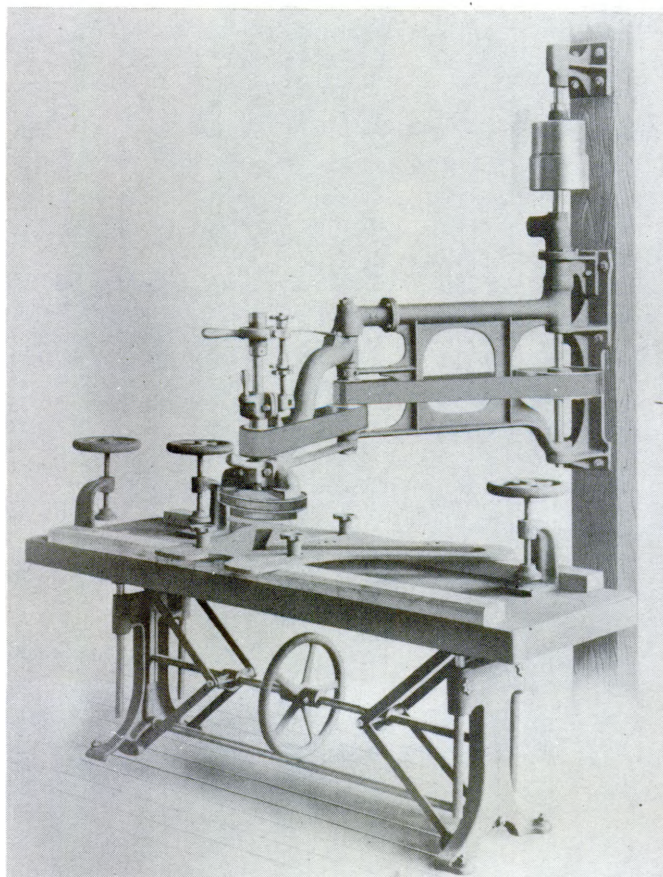
Promotion from: EXCELSIOR MILL LABORER.

Transfer to and from: EXCELSIOR-MACHINE OPERATOR.

Specialized Qualifications

Experience about an excelsior mill desirable.

FLEXIBLE-ARM SANDER



**FLEXIBLE-ARM SANDER OPERATOR
CIRCULAR SANDER OPERATOR
ELBOW SANDER OPERATOR**

LUMBER AND LUMBER PRODUCTS

**WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS**

Job Summary

Swings the rotating abrasive disk of a flexible-arm sander back and forth in contact with the surfaces of wooden articles to smooth and clean them prior to assembling or painting.

Work Performed

1. Places stock, such as door or window frame, on table of machine and fastens clamp to hold it rigidly in place.
2. Starts machine and pulls down flexible arm from which sanding disk is supported; swings rotating disk back and forth in contact with surface of wood, exerting required pressure so that surface will be sanded to smooth even finish.
3. Loosens bolt and removes disk from shaft and installs and fastens one of different size according to demands of work; cuts sandpaper to proper size and shape and glues it to disk as sandpaper becomes worn.
4. Cleans machine with cloths or compressed air and oils it periodically.

Equipment

Flexible-arm sander: A machine designed to sand large surfaces with a rapidly rotating disk which is supported by a jointed metal arm in such a manner that the worker can readily move the disk horizontally or vertically by hand.

Working Conditions

The work is carried on in a sawdust-laden atmosphere and the worker is subject to injury from contact with abrasive disk.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; a laborer.

Promotion to: FOREMAN.

Transfer from and to: BELT SANDER; COMBINATION SANDER; CYLINDER SANDER OPERATOR; HAND SANDER; TURNING SANDER OPERATOR.

Other relationships: This job and any or all of the jobs of BELT SANDER, COMBINATION SANDER, CYLINDER SANDER OPERATOR, HAND SANDER, and TURNING SANDER OPERATOR may be combined into one job entitled SANDER or SANDER HAND.

This job may be added to the usual duties of any other woodworking machine operator.

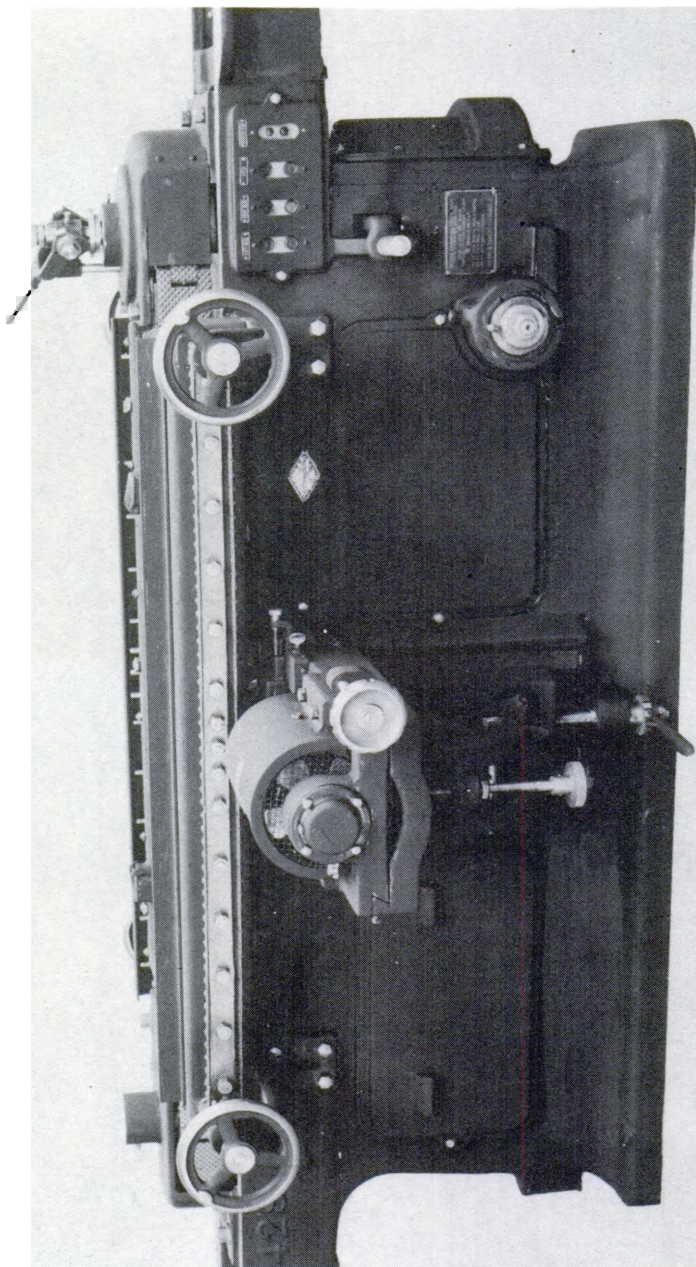
Specialized Qualifications

General experience at woodworking required.

Special Information

Determine: Other sanding machines operated, such as a belt sander, combination sander, or a cylinder sander.

GLUE JOINTER



GLUE-JOINTER OPERATOR JOINTER OPERATOR (AUTOMATIC)

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Rapidly pushes boards, on edge, between the pressure bars and feed chains of a glue jointer that squares, bevels, or tongues and grooves the edges of the boards so they may be glued together to form broad surfaces; carefully adjusts cutter heads to cut edge of boards to desired shape, and adjusts feed mechanism to accommodate boards of specified width.

Work Performed

1. Sets up machine: Bolts cutter heads equipped with matched sets of cutter blades on the spindles at each side of machine; adjusts pressure bars so that feed chain will grip the wooden pieces of width to be cut, and raises or lowers the feed and take-off tables on each side of the machine by turning handwheels to obtain desired depth of cut.
2. Starts machine and pushes stock between the pressure bar and the feed chain, which guide and convey it over the cutter blades on grooving side of machine; walks to take-off end of machine to receive stock as it emerges; turns the stock over on opposite edge, and feeds it back through tonguing side of machine. The work at take-off end of machine may be performed by a GLUE-JOINTER OPERATOR HELPER.

Equipment

Glue jointer or automatic jointer: A machine that cuts tongues and grooves on pieces of wood to prepare them for joining together with glue. The machine is in effect a double jointer. It consists of a base or frame, an adjustable table that supports the work, and two horizontal, rotary cutter heads mounted in slots on opposite sides of the table. Handwheels control the raising and lowering of the feed and take-off sections of the table to adjust the depth of cut. Stock pushed between the pressure bar and feed chain is conveyed over the grooving cutter and emerges on the take-off table to be returned on opposite side of the machine past the tonguing cutter.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; GLUE-JOINTER OPERATOR HELPER.

Promotion to: SHAPER OPERATOR; WOODWORKING-MACHINERY SET-UP MAN.

Transfer from and to: JOINTER OPERATOR.

Other relationships: This job may be added to the usual duties of JOINTER OPERATOR.

Specialized Qualifications

Ability to interpret blueprints required.

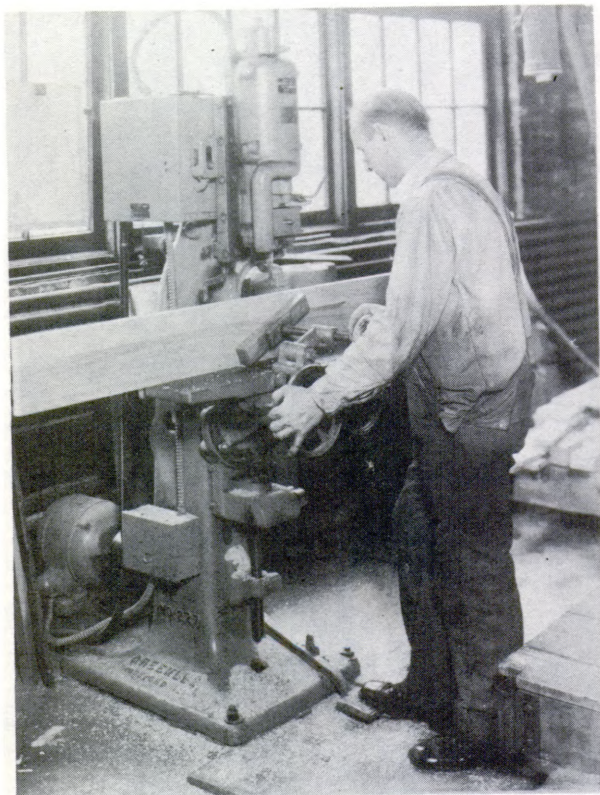
Should have ability to identify kinds and grades of wood, and should know their working characteristics.

Special Information

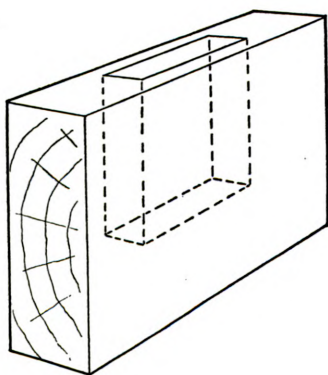
Determine: Other woodworking machines operated, such as hand jointer, molder, or shaper.

Whether worker will sharpen cutter knives.

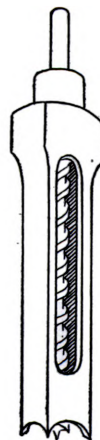
HOLLOW-CHISEL MORTISE MACHINE



- A. HOLLOW-CHISEL BIT.
- B. HANDWHEEL FOR MOVING AND CLAMPING STOCK.
- C. PEDAL THAT CONTROLS FEED MECHANISM.



PHANTOM VIEW OF A MORTISE



HOLLOW CHISEL BIT

HOLLOW-CHISEL MORTISE-MACHINE OPERATOR HOLLOW-CHISEL MORTISER OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Positions wooden articles on table of hollow-chisel mortise machine, fastens clamps to secure stock to table, and depresses pedal to actuate boring tool and chisel that cut a rectangular slot (mortise) in the wood in one operation. The mortises are usually made to accommodate rectangular projections (tenons) on other pieces to form a strong joint when the two are fitted together.

Work Performed

1. Selects boring bit and hollow chisel of appropriate size and clamps them to machine spindle; turns handwheels to raise or lower machine table until it is set for correct depth of hole and to move table laterally until it is set to bring desired portion of work under boring bit.
2. Measures wooden stock and marks it with guide lines to locate position for mortises.
3. Clamps stock on table, starts machine, and presses pedal to force bit and chisel into stock; unclamps stock, slides it to position for next hole, and repeats mortising operation. In large plants, this work may be laid out and the machine set up by other workers, in which case this job is then confined to the mere operation of the machine which is relatively simple.

Equipment

Hollow-chisel mortise machine: A machine for cutting square or rectangular holes in wood with a rotary bit turning within a hollow, square chisel. Like the vertical boring machine, this machine consists of a vertical column; a vertical rotary shaft (spindle) equipped with a clamp to hold and rotate boring bits; and an adjustably mounted table upon which the work is supported. The machine differs from the vertical boring machine in that it is provided with a clamp that supports a hollow chisel, inside of which the bit rotates, and a feed mechanism that forces the bit and chisel into the work.

The machine is sometimes constructed with a horizontal spindle instead of a vertical one. Such machines may be called horizontal hollow-chisel mortise machines.

Relation to Other Jobs

Promotion from: HORIZONTAL BORING-MACHINE OPERATOR;
VERTICAL BORING-MACHINE OPERATOR; WOODWORKER
APPRENTICE.

Promotion to: LAY-OUT MAN.

Transfer from and to: CHAIN MORTISE-MACHINE OPERATOR;
POCKET CUTTER OPERATOR; ROUTER OPERATOR.

Other relationships: This job may be added to the usual duties of SASH,
DOOR, AND FRAME ASSEMBLER; STICKER OPERATOR, or
TENON-MACHINE OPERATOR.

This job and the job of CHAIN MORTISE-MACHINE OPERATOR
may be combined into one job entitled MORTISE-MACHINE OP-
ERATOR.

The duties of HORIZONTAL BORING-MACHINE OPERATOR,
JOINTER OPERATOR, or MULTIPLE-SPINDLE BORING-MA-
CHINE OPERATOR may be added to this job.

Specialized Qualifications

Simple woodworking machine operating experience required.

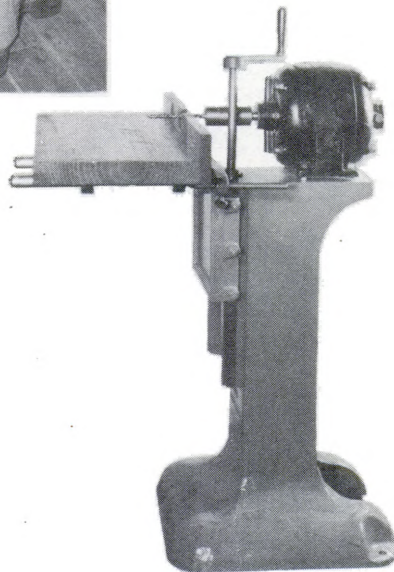
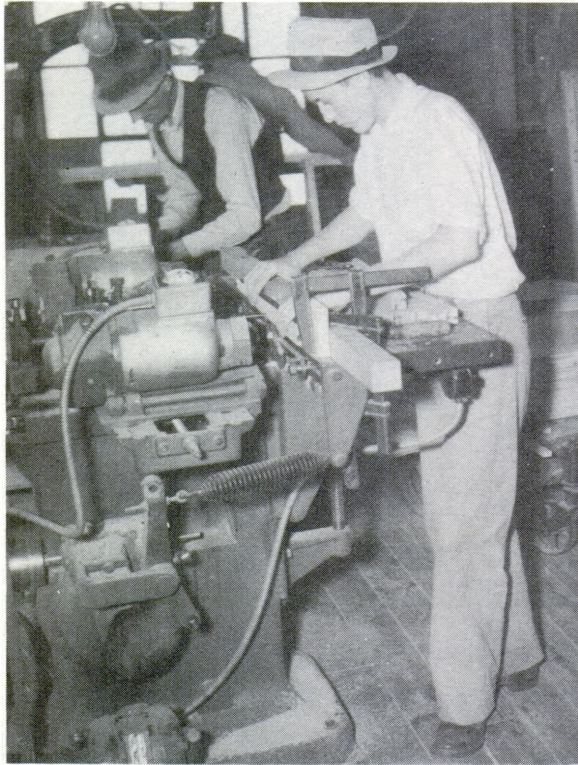
Worker should be able to interpret blueprints.

Special Information

Determine: Whether worker will merely operate machine or set up
machine and lay out the work also.

Other machines operated, such as pulley mortise machine
and chain mortise machine.

HORIZONTAL BORING MACHINES



Borer Tender, Automatic I 8-33.02**HORIZONTAL BORING-MACHINE OPERATOR****LUMBER AND LUMBER PRODUCTS****WOODEN ARTICLE FABRICATING****THE WOODWORKING MACHINE JOBS***Job Summary*

Marks wooden parts to locate points at which holes are to be bored, clamps them in position on table of horizontal boring machine, and depresses pedal to force the work against the rotating bit, thus cutting holes in the wood. Makes such relatively simple adjustments as clamping bits of proper size in chuck of machine and moving table horizontally and vertically, by handwheels, to locate work in proper position with relation to bit for the boring operation.

Equipment

Horizontal boring machine: A machine for drilling holes in wood with a rotary, horizontal bit. The machine consists essentially of a waist-high frame; a horizontal, power-rotated shaft (spindle) equipped with a clamp (chuck) at one end to engage bits; and a movable table upon which the work is supported and moved against the bit. The table may be adjusted horizontally and vertically to bring the bit opposite the appropriate portion of the work. Duplicate articles can be bored rapidly on this machine by holding or clamping each on the table and moving a lever or pedal to force the rotating bit into the wood at a suitable rate.

Relation to Other Jobs

Promotion from: **WOODWORKER APPRENTICE**; any woodworking machine operator helper.

Promotion to: **HOLLOW-CHISEL MORTISE-MACHINE OPERATOR**.

Transfer from and to: **MULTIPLE-SPINDLE BORING-MACHINE OPERATOR**; **VERTICAL BORING-MACHINE OPERATOR**.

Other relationships: This job may be added to the usual duties of **HOLLOW-CHISEL MORTISE-MACHINE OPERATOR** or **TENON-MACHINE OPERATOR**.

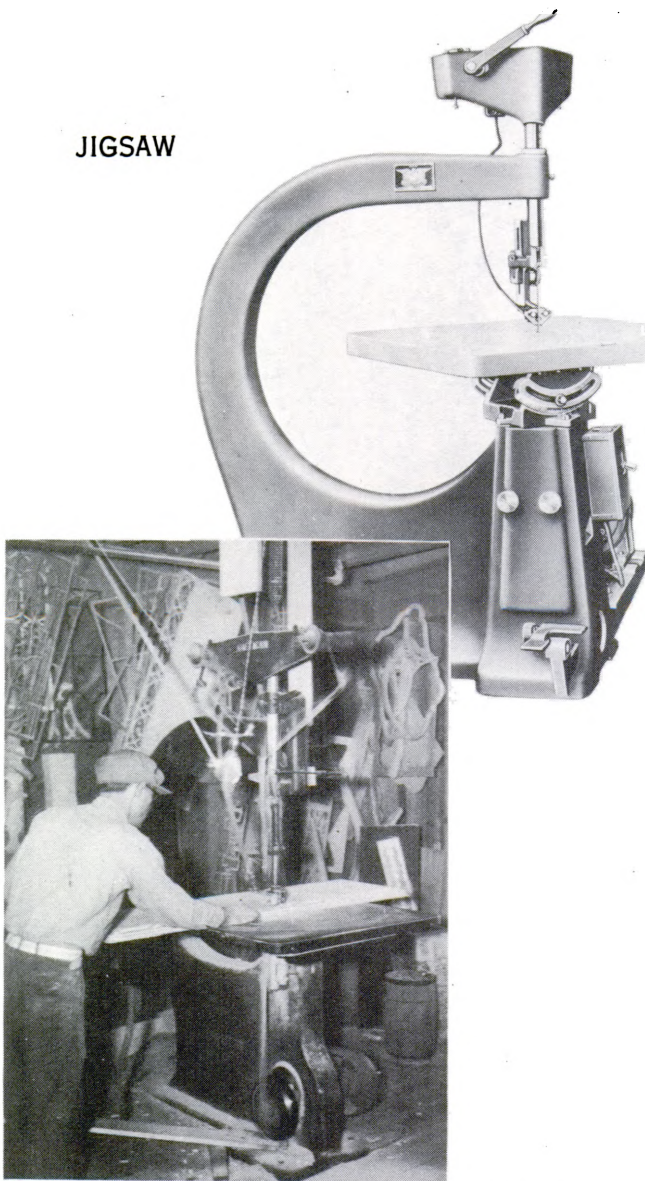
Specialized Qualifications

Woodworking experience gained from apprenticeship or work about woodworking establishments is desirable.

Special Information

Determine: Whether worker will work from blueprints and directions or whether work will be marked (laid out) for him.

JIGSAW

SAWING ALONG AN IRREGULAR OUTLINE WITH A JIGSAW

JIGSAW OPERATOR
FRET-SAW OPERATOR
JIGSAWYER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS

Job Summary

Slides wooden parts, gripped in both hands, along the table top and in contact with the reciprocating blade of a jigsaw, guiding and turning work so as to cut out the curved or irregular outline marked on the wood. This machine is especially adapted to cut openings which do not extend to the edges of the wood.

Work Performed

1. Prepares stock for sawing: Draws, traces, or pastes outline on piece of wood to be cut; bores hole in piece with brace and bit for insertion of saw blade, when outline does not extend to edges; nails several pieces together when it is desired to cut same opening in all simultaneously.
2. Sets up machine: Tilts table to desired angle and clamps it in position when edges of work are to be beveled; selects saw blade, inserts it through hole in work and in table, fastens its ends in clamps on drive mechanism, and moves lever to set blade under tension; clamps saw guide in position slightly above surface of work.
3. Starts machine, grips work in both hands, and pushes it against reciprocating blade, pressing it firmly against table and turning it about so as to follow the outline on the wood.

Equipment

Jigsaw: A reciprocating sawing machine designed for sawing wood along irregular or curved lines, particularly those that do not intersect the outside edges of the piece. The machine consists of a waist-high table that can be tilted to saw beveled edges, and a thin saw blade to which an up and down motion is imparted by a drive mechanism.

Working Conditions

The principal hazard is danger of cuts from accidental contact with saw blades.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: BAND SCROLL-SAW OPERATOR; VARIETY-SAW OPERATOR.

Other relationships: This job and the job of BAND SCROLL-SAW OPERATOR may be combined into one job entitled SCROLL-SAW OPERATOR.

Specialized Qualifications.

Woodworking apprenticeship may be required.

Some woodworking experience required.

Should have a general knowledge of working characteristics of wood.

Should be able to read and interpret blueprints.

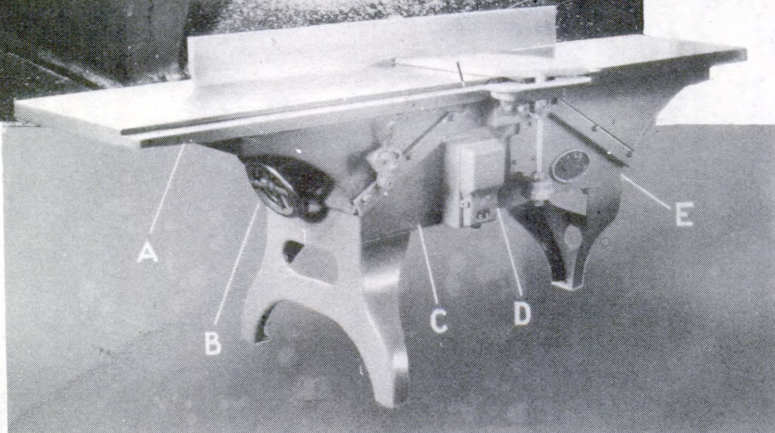
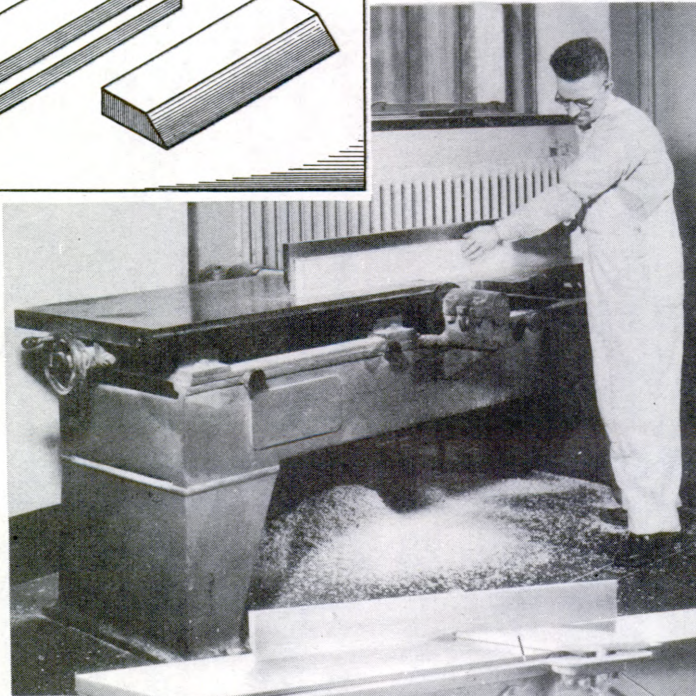
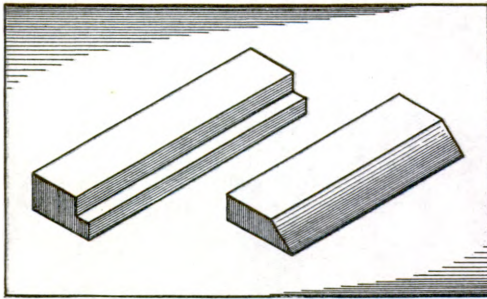
Special Information

Determine: Kind of wooden products worker will make.

Whether worker will sharpen and set saw blade.

Other machines operated, such as scroll saw, variety saw, and shaper.

TOP: RABBETING AND BEVELING DONE ON A JOINTER
CENTER: DRESSING THE EDGE OF A BOARD ON A JOINTER
BOTTOM: HAND JOINTER AND PLANER



A. RABBETING SHELF.
B. TABLE ADJUSTMENT.

C. GUIDE FENCE.
D. CUTTER-HEAD GUARD.
E. CUTTER-HEAD ARBOR.

**JOINTER OPERATOR
JOINTER-MACHINE OPERATOR
HAND JOINTER AND PLANER OPERATOR**

LUMBER AND LUMBER PRODUCTS**WOODEN ARTICLE FABRICATING****THE WOODWORKING MACHINE JOBS*****Job Summary***

Pushes wooden stock, on edge, across the table top and over the rotating cutter blades of a jointer to plane and square, bevel, rabbet, or otherwise shape the edges of the stock; holds stock firmly with both hands and feeds it at an even rate to prevent blades from kicking it back.

Work Performed

1. Selects cutter blades with appropriately shaped edges, installs and alines them on cutter head, and bolts them in place; slides fence (guide rail) across table to such position that entire width of stock will be exposed to blades, adjusts guide in upright or tilted position so that edge of stock will be squared or beveled, and clamps guide in place; turns handwheel to adjust height of table so that cutter blades project sufficiently above table to afford desired depth of cut.
2. Starts machine, grips stock in both hands and rests it on table and against guide rail; bears down heavily on stock and pushes it over rotating cutter blades, feeding it at the rate best suited to the particular kind of wood and the depth of cut being made.
3. Oils, greases, and cleans machine periodically.

Equipment

Hand jointer and planer: A machine equipped with a horizontal rotary cutter for planing surfaces and squaring edges of lumber. It consists of a two-section table, a horizontally supported rotary cutter head equipped with blades that project through a slot in the table, and an adjustable fence or guide rail which is clamped to the table and serves to guide the wood as it is pushed over the cutters. By turning handwheels, the feed and take-off sections of the table can be raised to regulate the depth of cut. Usually a pivoted safety guard covers the cutter slot except when it is pushed aside by the article being planed.

Working Conditions

May cut or mangle hands in operating machine.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Promotion to: LAY-OUT MAN.

Transfer from and to: GLUE-JOINTER OPERATOR; MATCHER OR MOLDER OPERATOR; PANEL-RAISER OPERATOR; PLANER OPERATOR; SHAPER OPERATOR; STICKER OPERATOR.

Other relationships: This job may be added to the usual duties of HOLLOW-CHISEL MORTISE-MACHINE OPERATOR.

The duties of GLUE-JOINTER OPERATOR, POCKET CUTTER OPERATOR, PULLEY-MORTISE-MACHINE OPERATOR, TENON-MACHINE OPERATOR, or VERTICAL BORING-MACHINE OPERATOR may be added to this job.

Specialized Qualifications

Should have ability to identify kinds and grades of wood, and should know their working characteristics, such as ease or difficulty in cutting, freedom from splintering, and frequency of knots.

Should be able to interpret blueprints.

Special Information

Determine: Whether worker will sharpen cutter blades or merely replace dull with sharp ones.

Other machines operated, such as shaper, planer, or hollow-chisel mortise machine.

KNOT SAWYER
RESAW TRIMMER
TABLE CUT-OFF-SAW OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Inspects lumber for defects, such as knots, pitch pockets, and split ends, that are to be cut out to improve the quality of lumber; slides fence (guide rail) into position on table of circular saw to accommodate width of lumber to be cut; starts machine, places piece of lumber on table of saw with end projecting beyond blade, and pushes piece with both hands against rotating blade to cut piece on one side of defect; if two smaller pieces of good lumber can be obtained from the larger piece, repeats sawing operation to cut lumber on other side of defect; places salvaged lumber on conveyor or hand truck and throws scrap into chute or onto hand truck.

Equipment

Circular saw: A power saw equipped with a circular saw blade. The machine consists essentially of a horizontal shaft, a saw blade fastened to the shaft, and a waist-high table with a slot through which the saw blade projects. Frequently guide strips of wood or metal are clamped to the table top to facilitate accurate feeding of the work to the saw.

Working Conditions

The worker is subjected to monotonous noise from the saw and to flying sawdust.

He is in danger of serious cuts on hands from accidental contact with saw blades.

Relation to Other Jobs

Promotion from: LOG CUTTER; SAWMILL LABORER; any wood-working machine operator helper.

Transfer from and to: CUT-OFF-SAW OPERATOR; RIPSAW OPERATOR; VARIETY-SAW OPERATOR.

Other relationships: This job may be added to the usual duties of CUT-OFF-SAW OPERATOR.

The duties of this job may be specialized and entitled KNOT SAWYER (FLOORING) or KNOT SAWYER (PARQUET FLOORING), according to the product with which the job is identified.

Specialized Qualifications

Previous woodworking experience required.

Woodworking apprenticeship may be required.

Ability to recognize different kinds and grades of lumber desirable.

Special Information

Determine: Whether worker will grade lumber or merely saw out defective portions.

LOG CUTTER
LOG CUT-OFF-SAW OPERATOR
CUT-UP SAWYER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS*Job Summary*

Lifts logs, that are to be cut into bolts for the making of such products as excelsior, laths, or shingles, and places them in cradle of sawing machine, with one end against stop that limits length of bolts; pushes cradle to force log against rotating, circular saw blade, or swings blade forward, by pulling handle, to cut through log; places bolts on conveyor or hand truck; changes position of stop and clamps it in place, when bolts of a different length are to be cut; removes dull saw blade and installs and bolts sharp one on shaft of machine.

The saw is kept in continuous operation, so worker must use care in placing logs in position for cutting.

Equipment

Power saw: A sawing machine that is adapted for rapidly cutting small logs and waste slabs of wood into measured lengths. One type consists of a circular saw blade mounted on a power-rotated shaft and a cradle that is set on hinges so that it can be swung toward the saw. Another type has a stationary carriage and a saw blade supported on a pendulum-like arc so that it may be swung across the cradle to cut the wood.

Working Conditions

The worker is subjected to loud, monotonous noise from the machine and to flying sawdust.

The principal hazard is danger of cutting hands by accidental contact with saw.

Relation to Other Jobs

Promotion from: SAWMILL LABORER.

Promotion to: CUT-OFF-SAW OPERATOR; KNOT SAWYER; RE-SAW OPERATOR; RIPS AW OPERATOR.

Transfer from and to: SCRAP SAWYER.

Other relationships: The duties of this job may be specialized and entitled BOLTER, CUT-OFF SAWYER (SHINGLE MILL), LOG CUTTER (EXCELSIOR), or TIMBER TRIMMER, according to the type of establishment in which the worker is employed or the type of work done.

Specialized Qualifications

General woodworking experience about an excelsior, lath, or shingle mill is desirable.

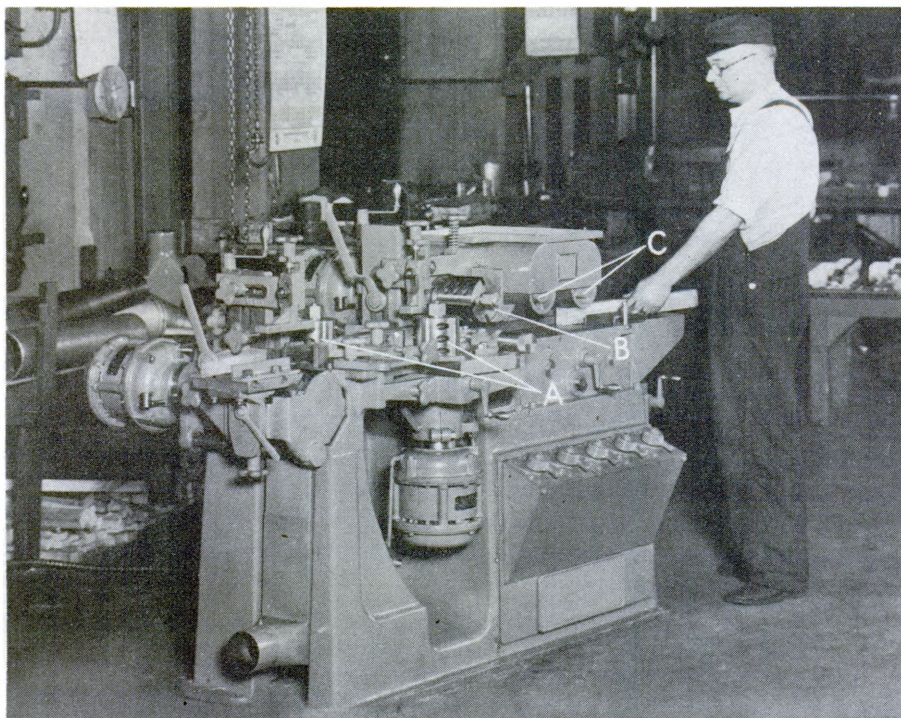
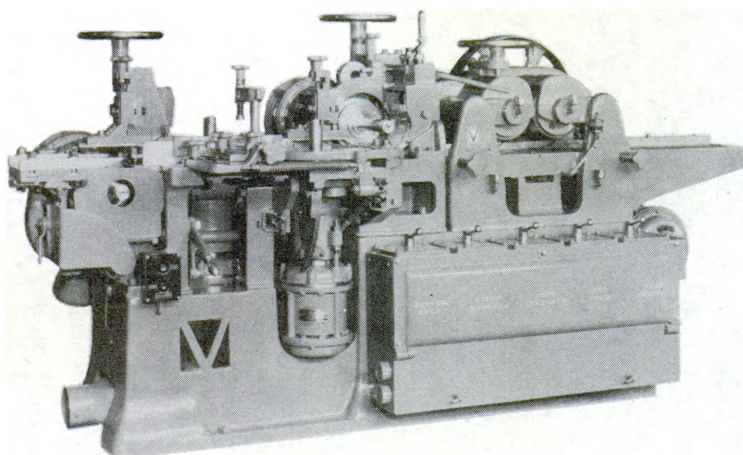
Should be able to recognize different kinds of wood.

Special Information

Determine: Whether worker will sharpen and set saw blades.

For what product, such as excelsior, laths, or shingles, worker will cut logs.

MOLDING MACHINES



A. VERTICAL CUTTER HEADS.
B. HORIZONTAL CUTTER HEAD.
C. FEED ROLLERS.

MATCHER OR MOLDER OPERATOR MOLDER HAND

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Rapidly pushes pieces of light lumber between feed rollers of four-sided planing machine (molder or matcher) designed to shape the lumber into such articles as molding, siding, ceiling, or flooring; performs the complete and complex adjustment of the machine to cut the lumber to desired shape.

Work Performed

1. Bolts suitable cutter heads to horizontal and vertical spindles, and selects knives that have been ground to shapes that will cut stock in accordance with prescribed pattern; bolts knives into cutter heads and adjusts their positions to conform to a template or sample; adjusts positions of cutter head spindles, guides, and feed rollers by turning handwheels and tightening setscrews.
2. Starts machine and pushes strips of wood between feed rollers; removes completed strips from a trough or table at rear of machine.
3. May be required to sharpen cutter knives.

Equipment

Molding machine: A special, four-sided planer for shaping light wooden pieces on all four sides simultaneously with horizontal and vertical rotary cutters. It consists essentially of two horizontal and two vertical rotary cutter heads that can be fitted with variously shaped knives, a feed table with one or more sets of powered feed rollers, and a receiving table. Tables, rollers, and cutters are all adjustable through the action of cranks or handwheels, as are the guides and hold-downs which keep the wood traveling in a straight line through the machine. Propelled by the feed rollers, the stock passes the horizontal cutter which planes the top surface, then the two vertical side-shaping cutters, and finally the lower horizontal cutter which shapes the bottom. Because of the number of cutters and the variety of designs and surfaces sought, this machine requires a nicety of adjustment.

Relation to Other Jobs

Promotion from: MATCHER OR MOLDER FEEDER; MATCHER OR MOLDER OFF-BEARER; WOODWORKER APPRENTICE.

Promotion to: WOODWORKING-MACHINERY SET-UP MAN.

Transfer to and from: JOINTER OPERATOR; PANEL-RAISER OPERATOR; PLANER OPERATOR; STICKER OPERATOR.

Other relationships: The duties of this job may be divided among separate jobs entitled MATCHER OR MOLDER FEEDER, MATCHER OR MOLDER OFF-BEARER, and WOODWORKING-MACHINERY SET-UP MAN.

Specialized Qualifications

Ability to tool and adjust machine required.

Ability to interpret blueprints required.

Should be familiar with the working characteristics of the more common woods.

Special Information

Determine: Other machines operated, such as planer, sticker, or glue jointer.

Whether worker will sharpen cutter knives or merely install sharp ones in machine.

Type of product made, such as molding, flooring, or siding.

Boring-Machine Operator, Multiple Spindle 6-33.412

MULTIPLE-SPINDLE BORING-MACHINE OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Clamps wooden articles securely on table of multiple-spindle boring machine and depresses pedal to force stock against the several rotating bits, thus boring several holes simultaneously, in proper relation to one another. Depending on plant practice, this worker or a WOODWORKING-MACHINERY SET-UP MAN makes the necessary machine adjustments which are rather complex.

Work Performed

1. May set up machine: Lays piece of stock on machine table and nails or clamps blocks of wood around edges to hold stock firmly; selects bits of proper size, and inserts and locks them in chucks on drilling spindles; manually moves each of several spindles to exact point over stock where hole is to be bored, and tightens bolts with wrench to fasten spindles in place; adjusts tabl stop to limit depth to which bits will penetrate wood.
2. Starts machine, and steps on pedal to raise table and force stock against rotating bits. (The table is raised by power or entirely by the pressure exerted on the pedal.)

Equipment

Multiple-spindle boring machine: A machine for boring several holes in wood simultaneously. The machine consists essentially of a rigid frame, a table upon which the work is supported, and several adjustably mounted, rotary shafts (spindles) upon which wood cutting bits can be clamped. Provision is made for varying the position and, on some machines, the angle of each spindle so that the bits can be directed to produce a cluster of holes in almost any relationship.

Duplicate articles can be bored rapidly on this machine by clamping or holding each on the machine table and moving a lever or pedal to force the rotating bits into the wood, exercising care that each article is correctly placed and held and that the bits are fed at appropriate speed.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: HORIZONTAL BORING-MACHINE OPERATOR; VERTICAL BORING-MACHINE OPERATOR.

Other relationships: This job may be added to the usual duties of **HOLLOW-CHISEL MORTISE-MACHINE OPERATOR** or **CHAIN MORTISE-MACHINE OPERATOR**.

Adjustment of machine may be performed by **WOODWORKING-MACHINERY SET-UP MAN**.

Specialized Qualifications

Woodworking experience gained from apprenticeship or work about woodworking establishments is desirable.

Must be careful in setting up machine in order to produce work conforming exactly to specifications.

Special Information

Determine: Whether worker will merely operate machine or will set up the machine in addition to operating it.

Whether worker will work from blueprints and directions or whether work will be marked (laid out) for him.

Other machines operated, such as horizontal boring machine, vertical boring machine, or jointer.

PANEL-RAISER OPERATOR
PANEL RAISER
PANEL-RAISER HAND

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS*Job Summary*

Pushes panel (thin, rectangular board used for doors and walls) in guide along table and between two sets of rotating cutter blades of a panel raising machine, after first adjusting blades to cut panel edges to desired depth and shape. The removal of the wood from the edges of the panels leaves an embossed (raised) central area, hence the term raised panel.

Work Performed

1. Selects cutter knives that have been ground to cut panel edges to required design, adjusts the cutter knives in slots on cutter head, and bolts them securely in place. Turns handwheel to raise or lower cutter heads until they are set to cut the desired edge on the panel. Adjusts movable guide on machine to accommodate stock of the required thickness so that panel will be firmly supported in a vertical position as it is pushed past the cutter blades.
2. Starts machine, grips panel with both hands, inserts one edge of panel between guides, and pushes panel between the cutters; turns panel and performs similar cutting operation for each of its edges, leaving a raised central area.
3. May sharpen cutter blades with an oilstone.

Equipment

Panel raiser: A machine that shapes raised wooden panels by beveling the edges of rectangular panel pieces with one or two rotary cutters. The machine consists of one or two spindle-mounted cutter heads that hold the cutter knives, a metal table with a slot through which the cutter knives project, and guides to support the panel as it is pushed past the cutters. Guards that protect the worker's hands cover the knives except at their point of contact with the working surface. The rotary spindles may be either vertical or horizontal, and on either type of machine they can be raised and lowered to regulate the depth of cut by turning handwheels. Various ground cutter knives are used to form bevels of different design on the edges of the panels.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: JOINTER OPERATOR; MATCHER OR MOLDER OPERATOR; PLANER OPERATOR; SHAPER OPERATOR; STICKER OPERATOR.

Other relationships: The raising of the panels may be performed by a SHAPER OPERATOR.

Specialized Qualifications

Ability to interpret blueprints required in order to produce panels according to specifications.

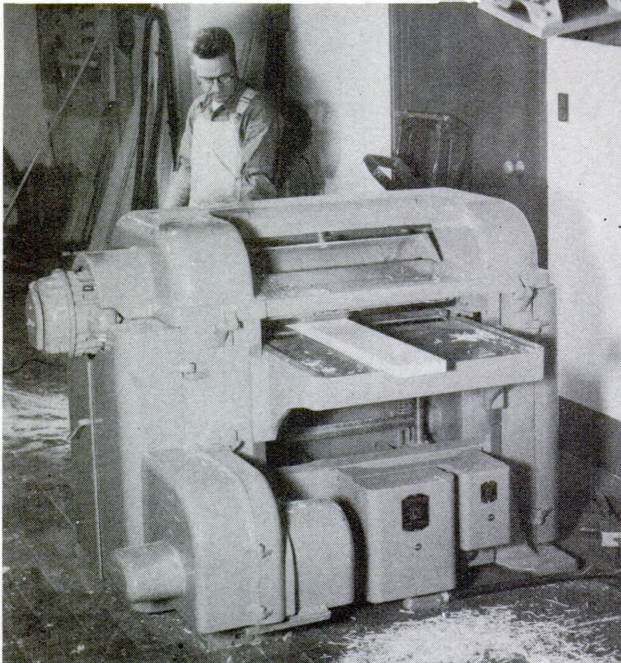
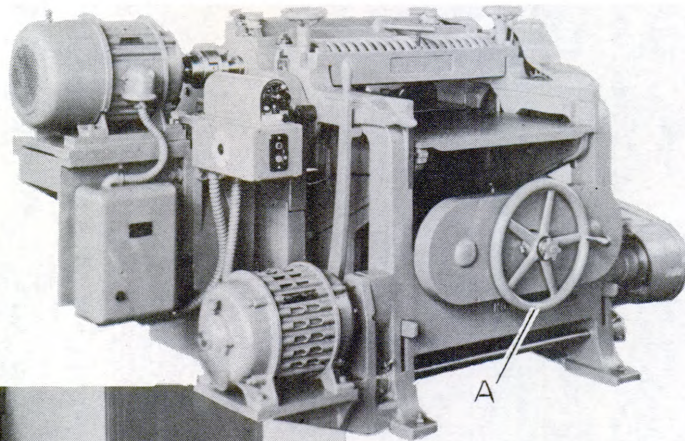
Should be familiar with the working characteristics of common woods.

Special Information

Determine: Other machines operated, such as planer, jointer, or shaper.
Whether worker will sharpen cutter knives and set up machine.

FRONT OR FEED SIDE OF PLANER

A. HANDWHEEL THAT ADJUSTS HEIGHT OF FEED TABLE.



OUT-FEED SIDE OF PLANER

PLANER OPERATOR
PLANER HAND
PLANER OPERATOR (SINGLE AND DOUBLE SURFACE)
PLANING-MACHINE OPERATOR
PLANING-MACHINE HAND

LUMBER AND LUMBER PRODUCTS WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS

Job Summary

Pushes pieces of lumber, one after another, along the top of the table of a planer and into the feed rollers which carry the pieces past rotating cutter blades that smooth and dress one or two surfaces of the lumber and reduce it to required thickness.

Work Performed

1. Raises or lowers both sections of table by handwheel, so that cutter blades project above table top sufficiently to cut desired thickness of wood from surface of lumber; adjusts height of pressure bar above table so that bar will press lumber firmly against blades during cutting.
2. Starts machine and lays one end of stock flat on feed table; pushes lumber lengthwise between feed rollers that carry it past cutter blades. May walk around machine and remove stock as it emerges. (PLANER OPERATOR HELPER usually removes stock when large quantities are planed.)
3. Removes blades when they become dull, and installs, alines, and bolts sharp ones in place on the one or two cutter heads of the machine.

Equipment

Single-surface planer or surfacer: A machine that planes wood to desired thickness and smoothness with horizontal rotary cutters. The machine consists essentially of a flat adjustable table or bed surmounted by one or more rotating horizontal spindles, one or more rollers, and a cutter head to which several cutter knives are attached. A metal bar (chip breaker) is mounted close in front of the cutter head to break off chips lifted by blades and to prevent splintering of the wood along the grain as it passes through the machine. A gage mounted on the frame indicates the distance between the table and cutter head.

Double-surface planer: Essentially the same as single-surface planer except that an additional cutter head, mounted below the table, planes the under surface of the wood as the top cutter planes the upper surface.

Relation to Other Jobs

Promotion from: PLANER OPERATOR HELPER; WOODWORKER APPRENTICE.

Promotion to: FOREMAN; MILLMAN; WOODWORKING-MACHINERY SET-UP MAN.

Transfer from and to: JOINTER OPERATOR; MATCHER OR MOLDER OPERATOR; PANEL-RAISER OPERATOR; SHAPER OPERATOR; STICKER OPERATOR.

Other relationships: The duties of CUT-OFF-SAW OPERATOR, RIP-SAW OPERATOR, TENON-MACHINE OPERATOR, or TIMBER-SIZER OPERATOR may be added to this job.

Specialized Qualifications

Ability to interpret blueprints required.

Should have ability to identify kinds and grades of wood, and should know their working characteristics.

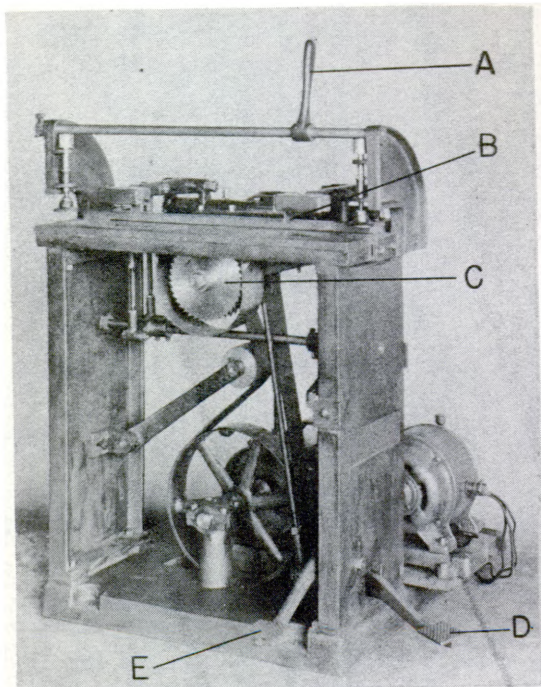
Special Information

Determine: Whether worker will operate a single-surface planer or a double-surface planer.

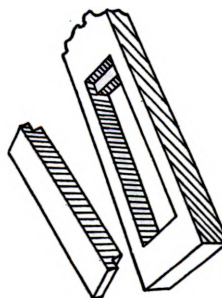
Other machines operated, such as jointer, shaper, or sticker.

Whether worker will sharpen cutter blades or merely install sharp ones in machine.

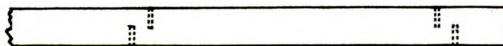
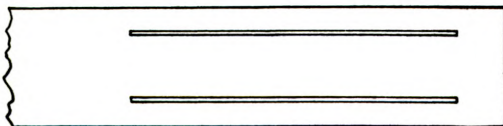
POCKET CUTTER



- A. STOCK CLAMP LEVER.
- B. SMALL RECIPROCATING SAW.
- C. CIRCULAR RIPSAW.
- D. PEDAL TO RAISE CIRCULAR SAWS.
- E. PEDAL TO CONTROL RECIPROCATING SAWS.



DETAIL OF SASH-
WEIGHT POCKET



DETAIL SHOWING CUTS MADE BY CIRCULAR
AND RECIPROCATING SAWS

POCKET CUTTER OPERATOR STILE POCKET OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Clamps jambs (upright members of door or window frames) to table of pocket cutter, and depresses pedal to actuate reciprocating and circular saws which automatically cut openings (sash weight pockets) in the wood.

Work Performed

1. Regulates distance between the two pairs of reciprocating saws that make the end cuts of the sash weight pockets and of the two circular saws that make the side cuts, so that pocket will be of desired size; sets side and end guides, against which jamb is placed, so pocket will be cut at specified distance from its bottom.
2. Places jamb against side and end guides on machine table, and pulls down clamp lever to hold jamb firmly in position; starts reciprocating saws, and pulls lever or steps on pedal to move them against top side and under side of jamb to make end cuts of pocket; steps on another pedal that raises circular saws to make side cuts; releases clamps and removes pocketed jamb from table.
3. Removes dull saw blades and installs and bolts sharp ones in machine.
4. May sharpen and set saw blades.

Equipment

Pocket cutter: A machine that cuts sash weight pockets in window jambs with circular and reciprocating saws. The machine consists essentially of a table, two circular rip saws, and two pairs of small reciprocating saws. The circular saws are mounted on a horizontal shaft set in a swinging support below a hole in the table. The end of the support at which the saws are mounted is raised by depressing a pedal. To the front and rear of the rip saws are the reciprocating saws, which move with a short stroke in a horizontal plane and are fed against the top side and under side of the jamb by pulling a lever or depressing a pedal. The lateral distance between the two upper reciprocating saws is greater than that between the two lower ones, and, as each pair is fed only halfway through the jamb, an offset is produced and a small amount of material is left uncut to hold the pocketpiece in place until it is knocked out later with a hammer.

Relation to Other Jobs

Promotion from: **WOODWORKER APPRENTICE**; any woodworking machine operator helper.

Transfer from and to: **CHAIN MORTISE-MACHINE OPERATOR**; **HOLLOW-CHISEL MORTISE-MACHINE OPERATOR**; **PULLEY-MORTISE-MACHINE OPERATOR**; **TENON-MACHINE OPERATOR**.

Other relationships: This job and the job of **PULLEY-MORTISE-MACHINE OPERATOR** may be combined into one job entitled **POCKET-CUTTER AND PULLEY-MORTISER OPERATOR**.

This job may be added to the usual duties of **CUT-OFF-SAW OPERATOR**, **JOINTER OPERATOR**, **RIPSAW OPERATOR**, or **SASH, DOOR, AND FRAME ASSEMBLER**.

Specialized Qualifications

Should be familiar with the working characteristics of the more common woods.

Should be able to interpret blueprints in order to produce work according to specifications.

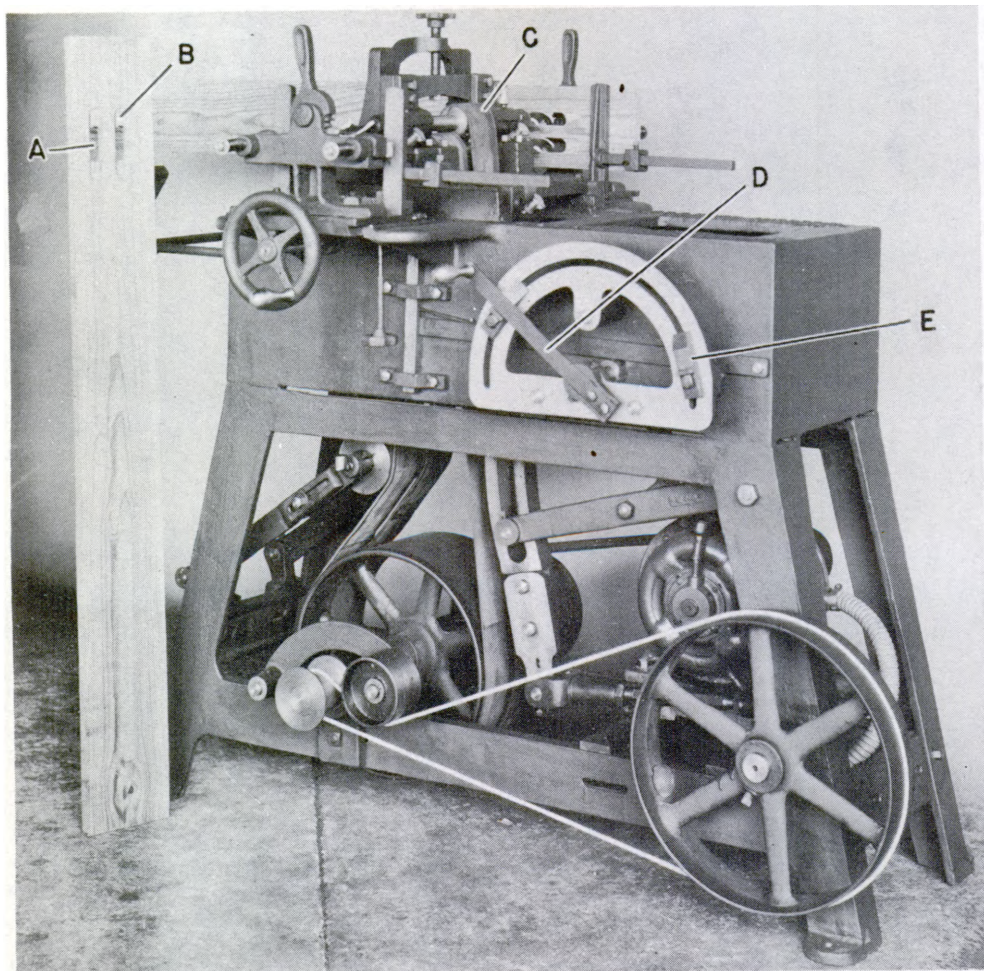
Special Information

Determine: Whether worker will operate the combined pocket cutter and pulley-mortiser machine or separate machines.

Other machines operated, such as chain-mortise machine and tenon machine.

Whether worker will sharpen the saw blades or merely install sharpened ones in machine.

PULLEY-MORTISE MACHINE



- A. PULLEY MORTISE.
B. PULLEY-MORTISE SHOULDER.
C. CARRIAGE.
D. CARRIAGE REGULATOR.
E. STOP.

Pulley-Mortiser Operator 6-34.150**PULLEY-MORTISE-MACHINE OPERATOR****PULLEY-MACHINE OPERATOR****PULLEY-MORTISER OPERATOR****LUMBER AND LUMBER PRODUCTS****WOODEN ARTICLE FABRICATING****THE WOODWORKING MACHINE JOBS***Job Summary*

Clamps jambs (upright members of window frame) on table of machine that cuts mortises (slots) for insertion of pulleys, adjusts position of table stops and routing bits so that mortises will be cut at correct points in jamb, and manipulates handwheels and lever to actuate bits which cut the mortises.

Work Performed

1. Sets up machine and work: Selects proper routing bits, placing and tightening them in the chucks mounted on the ends of two horizontal rotary shafts; clamps a pair of window jambs on edge in the vises of machine carriage; regulates distance between the spindles that carry routing bits, so that the pulley holes will be centered on either side of the center line of jambs; adjusts stops on carriage regulator, limiting its lateral movement to obtain the desired length of pulley mortise; similarly adjusts stops that limit the penetration of the bits, and extends supporting arms from machine to fit under unsupported ends of jambs to hold them level.
2. Starts machine and turns a handwheel that moves the jambs into bits which bore completely through them; shifts lever that feeds the jambs longitudinally against the sides of the bits until prescribed length of pulley mortise is cut; stops machine, loosens clamps, and removes the pair of finished jambs.

Equipment

Pulley-mortise machine: A machine that bores the pulley mortises for sash cord pulleys in window jambs, with mechanically rotated bits. The machine consists essentially of a metal frame supporting two horizontal shafts (spindles) fitted with chucks that hold and rotate routing bits, and a carriage provided with two vises. The vises hold the window jambs in place while the mortises are bored. Each of the spindles, which are mounted one above the other between the vises, is equipped with a chuck to accommodate a routing bit. The carriage which supports the vises and jambs is moved inward toward the ends of the bits with a handwheel and laterally against the bits to extend the length of the pulley mortises by moving a lever. Adjustable stops limit the move-

ment of the carriage inward and laterally in order that the pulley mortise shoulders and the pulley mortises themselves may be cut to the desired depth and length.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: CHAIN MORTISE-MACHINE OPERATOR; HOLLOW-CHISEL MORTISE-MACHINE OPERATOR; POCKET CUTTER OPERATOR; TENON-MACHINE OPERATOR.

Other relationships: This job and the job of POCKET CUTTER OPERATOR may be combined into one job entitled POCKET-CUTTER AND PULLEY-MORTISER OPERATOR.

This job may be added to the usual duties of CUT-OFF-SAW OPERATOR, JOINTER OPERATOR, RIPSAW OPERATOR, or SASH, DOOR, AND FRAME ASSEMBLER.

The machine adjustments may be performed by a WOODWORKING-MACHINERY SET-UP MAN.

Specialized Qualifications

Ability to interpret blueprints and precision in setting up machine is required in order to produce work according to specifications.

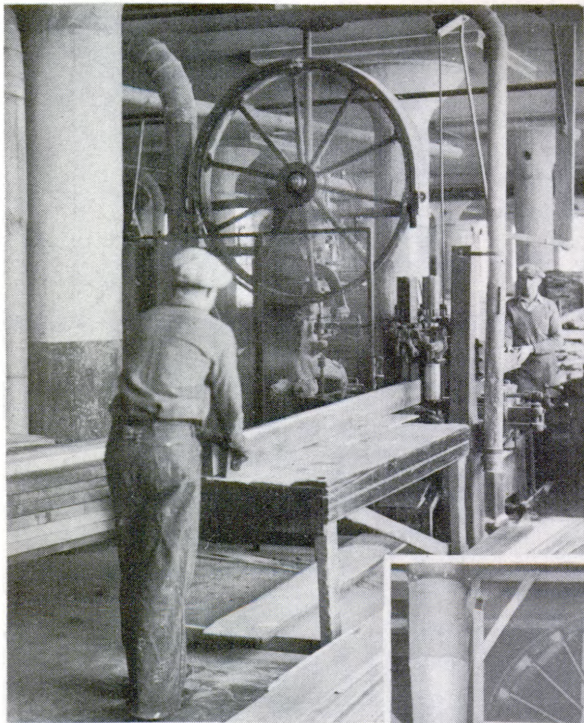
Should be familiar with the working characteristics of the more common woods.

Special Information

Determine: Whether worker will operate the combined pocket cutter and pulley mortiser or separate machines.

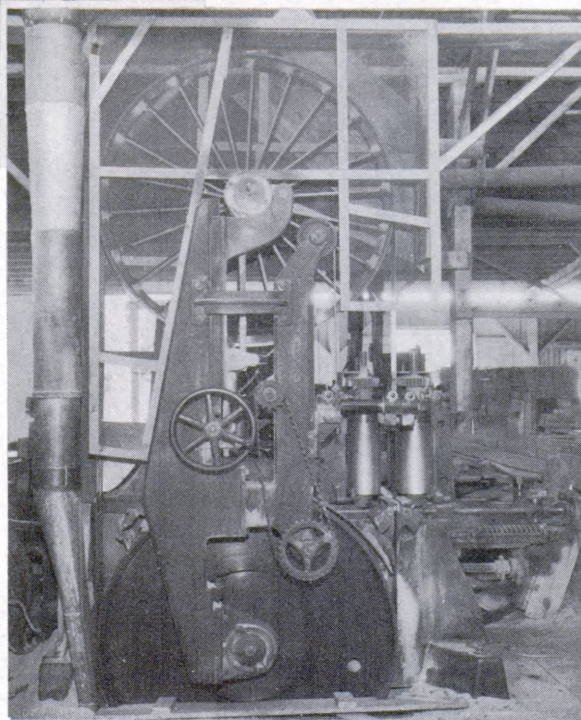
Other machines operated, such as chain-mortise machine and tenon machine.

Whether worker will sharpen routing bits.



TIMBER EMERGING
FROM BAND RESAWING
MACHINE

IN-FEED END OF BAND
RESAWING MACHINE



RESAW OPERATOR
RESAW-MACHINE OPERATOR
RESAW MAN
RESAWYER
RESIZER OPERATOR
SPLITTER

LUMBER AND LUMBER PRODUCTS WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS

Job Summary

Saws thick planks and timbers into boards of lesser thickness on a resawing machine by rapidly pushing the planks on edge, one piece after another, between feed rollers which carry it past a circular or band saw blade.

Work Performed

1. Sets the distance between the guide and feed rollers, by turning a handwheel, to insure cutting boards to required thickness; adjusts the speed of the feed rollers to push the boards past the saw blade at the most efficient rate for cutting wood of the kind required; clamps the saw guide in position, just clearing the top of the plank.
2. Pushes plank on edge to the feed and guide rollers and steps on a pedal, causing them to move apart, to grasp the plank, and to feed it past the saw; continues to feed planks through the machine, including those returned to him by the RESAW OPERATOR HELPER for another cut, until required number of boards have been sawed.
3. Removes dull circular blade from spindle or band saw blade from pulleys of machine and installs sharp ones in place.

Equipment

Band resawing machine: A saw for cutting timbers or planks into boards of lesser thickness with an endless, toothed, steel band. It consists of a metal frame, a table, and power-rotated feed and guide rollers. The metal frame supports two wheels over which the saw band runs and an adjustable saw guide that prevents the band from vibrating or twisting. The power-rotated guide and feed rollers are adjustable so that they may be set to grip boards of various dimensions and guide them in their passage against the saw to insure the cutting of boards to specified thickness.

Circular resawing machine: A machine very similar to the band resawing machine but utilizing a circular saw blade mounted on a horizontal shaft, instead of an endless saw band running on pulleys.

Working Conditions

- The worker is subject to loud, monotonous noise from the saw and to flying sawdust.
- He is in danger of cutting or amputating his fingers or hands by accidental contact with saw blade.

Relation to Other Jobs

Promotion from: LOG CUTTER; RESAW OPERATOR HELPER; SCRAP SAWYER; WOODWORKER APPRENTICE.

Other relationships: The duties of this job may be specialized and entitled BAND-RESAW OPERATOR or CIRCULAR-RESAW OPERATOR, according to the type of saw used.

The duties of TIMBER-SIZER OPERATOR may be added to this job.

Specialized Qualifications

Woodworking apprenticeship may be required.

Previous woodworking experience required.

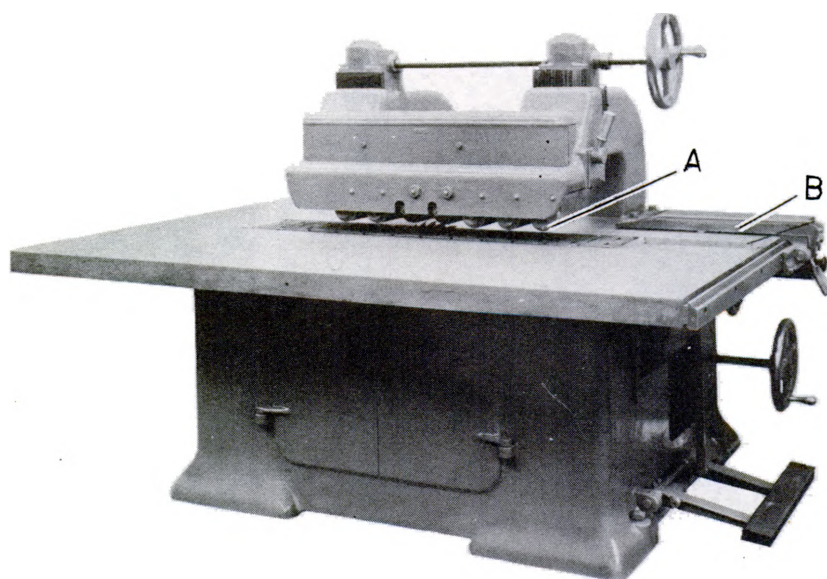
Should be able to recognize different kinds and grades of lumber

Special Information

Determine: Whether worker will operate a band or circular resaw machine.

Whether worker will sharpen and set saws.

CIRCULAR RIPSAW



- A. FEED ROLLERS.
B. ADJUSTABLE GUIDE FENCE
C. CIRCULAR SAW BLADE.

Band-Ripsaw Operator 6-33.211
 Also covers: Circular-Ripsaw Operator 6-33.211
RIPSAW OPERATOR
RIPSAWYER
RIPPER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Cuts lumber, with the grain, to prescribed width on a ripsawing machine by pushing each piece, on flat side, between feed rollers which carry it past a circular or band saw blade, after carefully adjusting roller speed to feed lumber at rate best suited to hardness of wood; or, when machine is not equipped with power-feed rollers, pushes lumber past saw by hand.

Work Performed

1. Measures the distance from the saw blade to a movable guide rail (fence) on the saw table, and slides the fence across the table to a position where it will direct the boards against the saw so that they will be cut to the exact width required; sets the feed rollers, by moving a lever or handwheel, at correct distance above the table to grip boards of the required thickness; adjusts roller speed to feed boards at a rate best suited to the hardness of the wood.
2. Starts machine and slides board with one edge resting against the ripping fence into the feed rollers that grip and push it past the rapidly moving saw blade;
3. Or, if machine is not equipped with power-feed rollers, presses board firmly against table top and ripping fence with both hands and pushes it past saw blade, carefully guarding against touching the blade with his hands.
4. Removes dull band or circular saw blade and installs and fastens sharp ones in place on pulleys or spindle of machine.

Equipment

Band ripsaw: A power saw equipped with an endless, toothed, steel band for sawing lumber to specified width. It consists essentially of an upright frame, a table on which the work is supported, and two wheels mounted one above the other that support and drive the saw blade. The table is mounted in the frame in such position that the saw blade passes downward through a slot in its surface. Power feed rollers and a ripping fence are provided to facilitate the sawing.

Circular rip saw: A power-driven machine in which a circular saw blade projects above a work table on which the wood is cut. The table is fitted with an adjustable guide fence and usually has feed rollers above the saw to keep the wood tight against the table. Where feed rollers are not used a spring guard falls over the blade when not in use.

Working Conditions

The worker is subject to loud, monotonous noise from the machine and to flying sawdust.

The principal hazards are danger of cutting hands from accidental contact with saw blade, and of being struck by boards that may be seized and forcibly thrown back by the whirling saw blade of a circular rip saw.

Relation to Other Jobs

Promotion from: LOG CUTTER; SCRAP SAWYER; WOODWORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: CUT-OFF-SAW OPERATOR; EDGER MAN; KNOT SAWYER; VARIETY-SAW OPERATOR.

Other relationships: The duties of this job may be specialized and entitled BAND-RIPSAW OPERATOR, CIRCULAR-RIPSAW OPERATOR, GANG-RIPSAW OPERATOR, LATH FEEDER, according to the type of saw used or the product made.

This job and the job of CUT-OFF-SAW OPERATOR may be combined into one job entitled BILL CUTTER.

This job may be added to the usual duties of any other woodworking machine operator when it is necessary to saw stock to desired width.

Specialized Qualifications

A general knowledge of the working qualities, kinds, and grades of wood required.

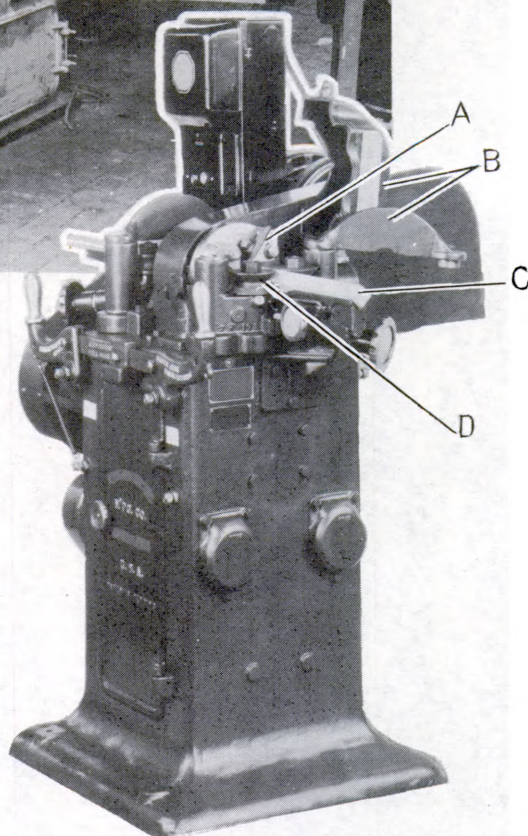
Woodworking apprenticeship may be required.

Special Information

Determine: Type of rip saw operated, such as band or circular, hand or power feed.

Other machines operated, such as cut-off saw, planer, or jointer.

FEEDING STOCK THROUGH A ROUNDING MACHINE



ROUNDING MACHINE

- A. CUTTER HEAD.
- B. GUARD.
- C. STOCK ENTERING MACHINE.
- D. FEED ROLLER.

ROUNDING-MACHINE OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Rapidly places square strips of wood, one after another, on guide trough of rounding machine and pushes them into power-feed rollers which force them through rotating cutter head that cuts and shapes the strips to circular cross section.

Work Performed

1. Selects cutter knives and bolts them into cutter head, adjusting the position of each with respect to a sample piece or calipers template so that each knife will perform its share of the cutting and none will act inaccurately to destroy the work of others; clamps guide trough in position to direct the work through center of cutter head, and adjusts distance between feed rollers to grip the stock firmly as it is fed through machine.
2. Starts machine, places each piece of stock in the guide trough, and pushes them into the feed rollers that force it through the center of the cutter head past the rapidly rotating cutter knives;
3. Or, if machine is equipped with only one set of feed rolls or with none at all, pushes and pulls stock partly or entirely through cutter head by hand.
4. Where machine is so equipped, installs special cutter head or combination of cutter head and feed rollers by which longitudinal or spiral flutes (grooves) are cut into the surface of the wood.

Equipment

Rounding machine: An automatic wood-turning machine for the rapid, quantity production of round wooden objects, such as dowels or wooden pins. The machine consists essentially of a frame, a rotary cutter head armed with internally projecting knives, and a set of feed rollers and guide that conduct the material through the cutter head. The cutter head is a rotary, hollow cylinder provided with clamps for engaging inward-projecting cutter knives that work the stock as it passes through the head. The power-rotated feed rollers are so situated that they push the wooden stock through the guide tube or trough to the cutter head in correct position for accurate contact with the cutter knives.

Variations in the machine, such as having only one set of feed rollers or no feed rollers, make it necessary to feed the stock partly or entirely by hand; and being equipped for the installation of special cutter heads and

feed rollers make it possible to cut longitudinal or spiral grooves in the wood.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Transfer from and to: CHUCKING-MACHINE OPERATOR; SWING-TYPE LATHE OPERATOR; VARIETY-LATHE OPERATOR.

Other relationships: The duties of this job may be specialized and entitled DOWEL-MACHINE OPERATOR, ROPE-POLE-MACHINE OPERATOR, and TWISTING-MACHINE OPERATOR, according to the product made.

The duties of CHUCKING-MACHINE OPERATOR may be added to this job.

Specialized Qualifications

Familiarity with the working characteristics of different woods, gained through work at a woodworking establishment, is desirable.

Precision in setting up machine to produce perfectly circular stock is required.

Special Information

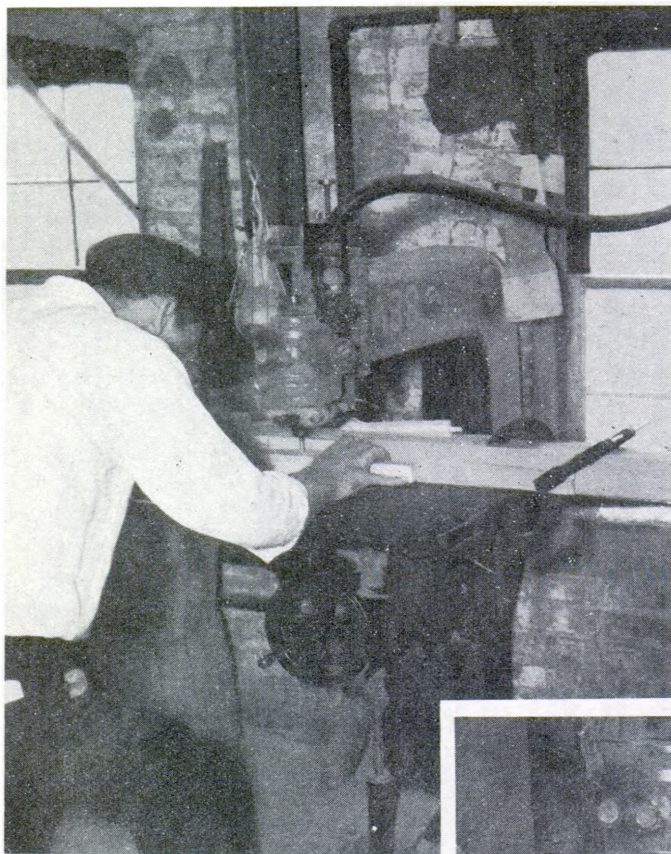
Determine: Whether worker operates hand-feed or automatic-feed dowel machine.

Type of machine worker will operate, such as dowel machine, rope-pole machine, and twisting machine.

Whether worker will use special attachments for fluting.

Whether worker will sharpen cutter knives.

ROUTING A GROOVE IN A CHAIR LEG



CLOSE-UP OF ROUTING BIT



ROUTER OPERATOR
ROUTER HAND
ROUTER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS*Job Summary*

Cuts designs or depressions of various shapes in the surface of small wooden articles on a routing machine, by simultaneously sliding the work, with both hands along the table top and in contact with the rotating bit, turning the work as required to follow the outline, and depressing a pedal to raise the table and force the bit into the wood.

Work Performed

1. Selects routing bit of appropriate size and shape, and installs and clamps it in chuck on end of spindle; inserts guide pin in table (the pin serves to limit the movement of the jig to which wood is clamped when being routed); adjusts height of table, by turning handwheel, to limit maximum depth of cut.
2. Selects jig (the under side of which is cut away to form the pattern to be cut in the wood) and clamps it to stock; places jig over pin in table and starts machine.
3. Depresses pedal to raise table and engage wood with rotating bit, slides work along table with both hands, and turns it to follow design of jig as guided by pin until wood is completely routed.
4. Routes out simple designs, grooves, and depressions in wood without use of jig, guiding the work under the bit entirely by hand.
5. May make jigs for the production of a number of objects with identical design by routing out stock on machine according to specifications.

Equipment

Router: A special, vertical-boring machine for cutting variously shaped grooves, holes, or hollows in wood. The machine consists of a vertical column, a vertical shaft (spindle) equipped with a clamp (chuck) to hold and rotate bits, and an adjustably mounted table upon which the work is supported. The work is placed on the table which is elevated by turning a handwheel until the bit penetrates to the required depth, then the work is slid about on the table under the bit to enlarge and shape the hole to required dimensions. When several duplicate parts are to be produced the work is fastened to a jig which is in turn placed over a pin inserted in the table, the pin serving to guide the work according to the pattern cut in the under side of the jig.

Relation to Other Jobs

Promotion from: VERTICAL BORING-MACHINE OPERATOR;
WOODWORKER APPRENTICE.

Transfer from and to: CHAIN MORTISE-MACHINE OPERATOR;
HOLLOW-CHISEL MORTISE-MACHINE OPERATOR.

Specialized Qualifications

Experience at simple machine jobs such as JOINTER OPERATOR or
VERTICAL BORING-MACHINE OPERATOR is required.

Should have ability to identify common woods and should know the work-
ing characteristics of each.

Should possess well developed hand-eye coordination if work is to be
routed by freehand methods.

Special Information

Determine: Whether worker will lay out work.

Whether worker will be required to rout stock by freehand
methods as well as by use of jigs.

Whether worker will make jigs.

SCRAP SAWYER
CUT-UP SAWYER
KINDLING SAWYER
SLAB-SAW OPERATOR
SLASHER OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Places pieces of scrap wood on saw table with desired length projecting beyond saw blade, holds wood firmly against table with one or both hands, and pushes wood against rotating circular saw blade or grips handle and pulls saw down across wood; sets stops and guides on table of saw to cut pieces to uniform length when desired.

Although the sawing of firewood and scrap for boiler fuel is merely a repetitive process, this worker may be required to have a sufficient knowledge of woods to enable him to select and saw out salvageable pieces of lumber.

Equipment

Circular saw: A power saw equipped with a circular saw blade. The machine consists essentially of a horizontal shaft to which a saw blade is fastened and a waist-high table with a slot through which the saw blade projects. Frequently, guide strips of wood or metal are clamped to the table top to facilitate accurate feeding of work to the saw.

Slasher: A sawing machine consisting of a table in which are set one or more circular saw blades and over which scrap wood is passed to be cut into suitable lengths for salvaging, burning, or hogging (grinding).

Swinging cut-off saw: A circular saw that is suspended above the sawing table in an arm-like framework that permits its being drawn across the lumber with a pendulum-like motion.

Working Conditions

The worker is subject to loud, monotonous noise from the saw and to sawdust-laden air.

The principal hazard is that of cutting hands on the saw.

Relation to Other Jobs

Promotion from: A laborer.

Promotion to: CUT-OFF-SAW OPERATOR; RESAW OPERATOR; RIPSAW OPERATOR.

Transfer from and to: LOG CUTTER.

Other relationships: This job may be added to the usual duties of CUT-OFF-SAW OPERATOR.

Specialized Qualifications

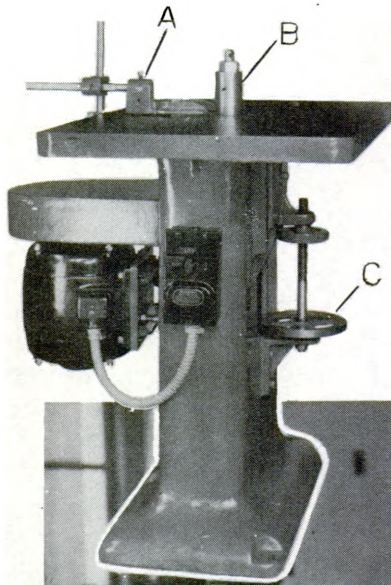
Experience at woodworking desirable.

Must have a knowledge of the different kinds and grades of wood in order to salvage as much wood as possible.

Special Information

Determine: Whether this or another worker will sharpen and set saw.

Whether worker will salvage pieces that have been marked or use his judgment in determining which to save.

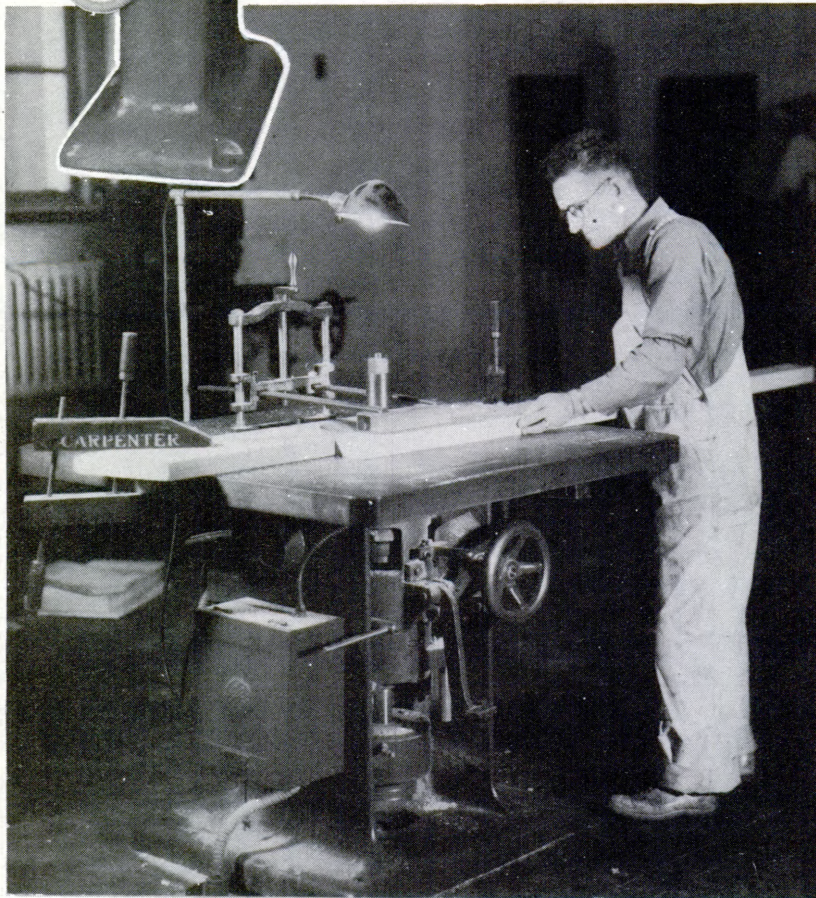


SINGLE-SPINDLE SHAPER

A. GUARD.

B. VERTICAL SPINDLE.

C. HANDWHEEL TO CONTROL ELEVATION OF SPINDLE



MAKING A SIMPLE CUT ON A SHAPER

**SHAPER OPERATOR
SHAPER HAND
SHAPING-MACHINE OPERATOR**

LUMBER AND LUMBER PRODUCTS

**WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS**

Job Summary

Cuts designs of irregular shape in the surface of straight, curved, or irregular pieces of wood on a shaper, by simultaneously sliding the work along the top of the table with both hands, forcing it against rotating cutter blades, and turning the work as required to follow the outline and the grain of the wood.

The difficulty of the shaping operation depends upon whether the work can be cut by the use of a guide or template to control the cutting, or must be cut by the skillful, freehand manipulation of the wood against the cutters. Regardless of the method employed and in spite of the use of cutter guards, the shaper is the most dangerous woodworking machine to operate because of the hazard of the rapidly rotating, partially or completely exposed cutter blades projecting above the work table.

Work Performed

1. Selects balanced set of cutter blades of proper size and shape, carefully alines them on vertical cutter head with each projecting an equal distance from spindle, and bolts blades in place; raises or lowers spindle, by handwheel, so that it projects the proper height above table, and locks spindle in place.
2. When shaping straight or regularly curved stock: Clamps straightedged or regularly curved guide to table top in such position as to limit depth to which cutters may penetrate wood; and lowers cutter guard around blades to such height as to hold stock firmly on table during cutting; starts machine, rests piece of stock on table against guide, and pushes it past rotating blades with both hands.
3. When shaping irregularly curved stock with aid of template: Selects template of appropriate design, and clamps it to stock or hammers stock down on short pins projecting from template; clamps guide to table to limit depth of cut and starts machine; places work on table against guide and pushes it past blades, the edge of the template controlling and determining the shape of cut; or, without use of guide, deftly slides stock over table top in contact with blades, pressing edge of template against guide collar on spindle to limit depth of cut and turning it as required to follow template outline and to cut with the grain of the wood.

4. When shaping irregularly curved stock without use of guide or template: Inserts pin in hole in table and starts machine; presses stock firmly against table and pin with both hands and slowly feeds it past blades, skillfully pivoting stock against pin to follow outline of design and grain of wood and to control depth of cut.
5. May grind edges of cutter blades to correct shape for special jobs, using an emery wheel and oilstone.

Equipment

Single-spindle shaper: A machine used to cut irregular designs in the surfaces of straight or curved wooden stock by the action of vertical, rotating cutter blades. It consists of a metal table through which projects a vertical spindle that carries a balanced set of cutter knives, a guard with an opening to fit around the cutter, and straightedged or curved guides for directing the stock as it passes the cutter blades. A hand-wheel controls the elevation of the spindle which is clamped at a fixed height with a setscrew. The direction of this rotating spindle may be reversed on the single-spindle shaper.

Double-spindle shaper: A machine similar to the single-spindle shaper, except that it is equipped with a second vertical spindle, rotating in an opposite direction from the first. Either spindle may be lowered beneath the table top when not in use. The double shaper is most commonly used to finish curved or irregular shapes.

Relation to Other Jobs

Promotion from: GLUE-JOINTER OPERATOR; WOODWORKER APPRENTICE.

Promotion to: FOREMAN; LAY-OUT MAN; MILLMAN; WOODWORKING-MACHINERY SET-UP MAN.

Transfer from and to: JOINTER OPERATOR; MATCHER OR MOLDER OPERATOR; PANEL-RAISER OPERATOR; PLANER OPERATOR; STICKER OPERATOR; TENON-MACHINE OPERATOR.

Other relationships: The setting up of the machine may be performed by a WOODWORKING-MACHINERY SET-UP MAN.

The duties of BAND SCROLL-SAW OPERATOR, CUT-OFF-SAW OPERATOR, RIPSAW OPERATOR, or TENON-MACHINE OPERATOR may be added to this job.

Specialized Qualifications

Considerable woodworking experience required.

Ability to interpret blueprints required.

Ability to judge dimensions and similarity of shapes in order to select the correct cutter blades for each design required.

Familiarity with working characteristics of wood required.

Precision in setting up machine is absolutely essential to prevent injury to worker as well as to produce work according to specifications.

Must possess a high degree of hand-eye coordination in order to produce quality work and to prevent injury to himself.

Special Information

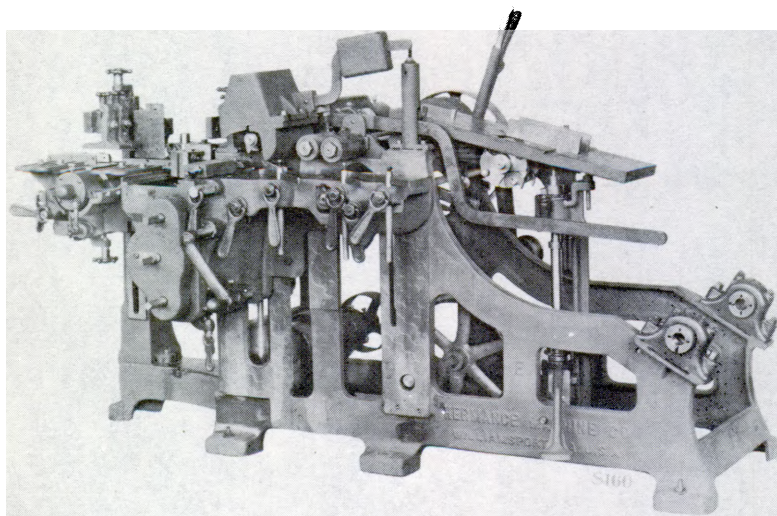
Determine: Whether worker will operate a single-spindle or double-spindle shape.

Whether worker will shape work with or without use of guides and templates.

Whether worker will grind cutter blades for special jobs.

Other machines operated, such as planer, panel raiser, or rip-saw.

STICKER



**STICKER OPERATOR
RABBET AND MOLDING-MACHINE OPERATOR
STICKER-MACHINE OPERATOR**

LUMBER AND LUMBER PRODUCTS

**WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS**

Job Summary

Cuts grooves for glass panes or wood panels in window and door parts on a special planing machine (sticker), by rapidly pushing parts, one after another, between feed rollers which force the parts through the machine; pushes upper ends of window stiles (vertical members of window frame) over cutter and bit attachment to cut groove and hole for fastening sash cord to window.

Work Performed

1. Bolts suitable cutter head on horizontal spindle, selects knives with cutting edges that will groove stock in accordance with desired molding design, fastens knives into cutter head, and adjusts height of table by turning handwheel to obtain desired depth of cut; clamps or bolts spring stock guides in position to accommodate the work; regulates speed of feed rollers according to material and kind of cut.
2. Places wooden pieces firmly against guides and pushes them between feed rollers; removes finished pieces from rear of machine.
3. Cuts a groove that provides clearance for sash cords, and bores a hole to accommodate the knot at the end of the sash cord in outside surfaces of window stiles (vertical members) by pushing the pieces over the cutter and bit of a plow and boring attachment on the sticker.

Equipment

Sticker (rabbet and molding machine): A machine that cuts grooves for glass panes or wooden panels in door or window pieces. The machine consists of a metal framework supporting an adjustable table, one or more horizontal spindles to which cutter heads and knives are attached, and several power-rotated feed rollers. By turning a crank the table can be elevated to control the depth of cut. Adjustable spring stock guides hold the piece firmly against the guide plate as it is pushed into the feed rollers and forced past the revolving knives. Machines with a sash plow and boring attachment have an extra cutter head that grooves window stiles to provide clearance for sash cords and a drill that bores holes to accommodate sash cord knots.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Promotion to: MILLMAN; WOODWORKING-MACHINERY SET UP MAN.

Transfer from and to: JOINTER OPERATOR; MATCHER OR MOLDER OPERATOR; PANEL-RAISER OPERATOR; PLANER OPERATOR; SHAPER OPERATOR.

Other relationships: The cutting of sash cord grooves and holes in window stiles may be performed by a PLOW AND BORING-MACHINE OPERATOR.

The duties of CUT-OFF-SAW OPERATOR and RIPS AW OPERATOR may be added to this job.

Specialized Qualifications

Woodworking experience required.

Should have knowledge of the working characteristics of the more common woods.

Should be able to interpret blueprints in order to cut grooves at proper location.

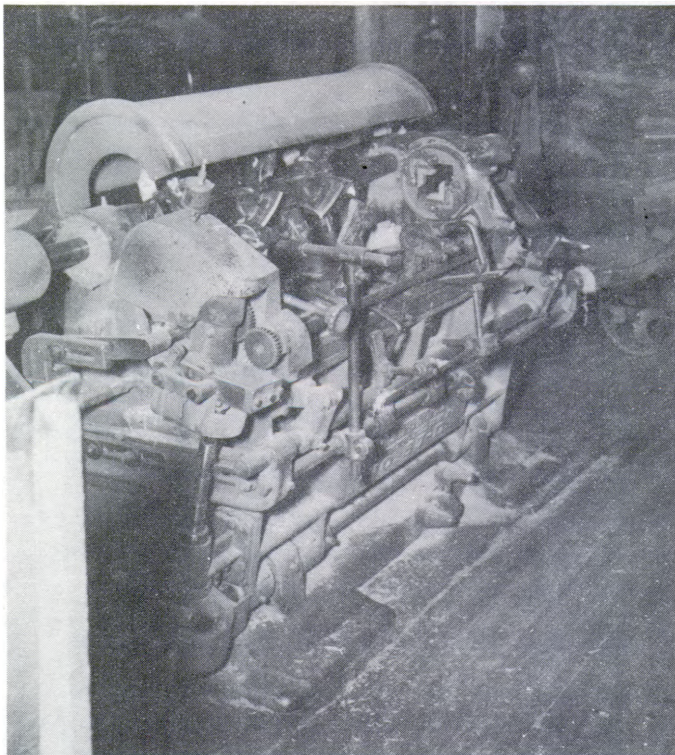
Special Information

Determine: Whether worker will grind cutter knives.

Other machines operated, such as planer, molding machine, or vertical boring machine.

Whether worker will operate combination machine or a sticker and a sash plow and boring machine.

SWING-TYPE AUTOMATIC LATHE



Swing-Type-Lathe Operator 6-33.371**SWING-TYPE LATHE OPERATOR
AUTOMATIC LATHE OPERATOR****LUMBER AND LUMBER PRODUCTS****WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS***Job Summary*

Shapes such articles as baseball bats, implement handles, and table legs to circular cross section on an automatic lathe designed to produce identical, turned objects rapidly: Selects cutter head with appropriately shaped cutter blades and bolts it on machine spindle, then alines blades to cut wood to desired shape and fastens them in place with set-screws. Mounts blanks (blocks of wood), one after another, between centers of lathe, moves lever to swing blanks into contact with rotating cutter blades, and removes shaped articles when turning is complete.

Equipment

Swing-type automatic lathe: A machine for rapidly shaping articles of circular cross section. The machine is provided with a shaft upon which rotary cutters are mounted and a pair of rotary centers. Each center engages one end of a piece of wood and both serve to support the wood and rotate it about its center line. As a piece of wood, supported between the centers, is swung into the path of the rotary cutter knives, its surface is shaved away until the shape for which the machine has been set is produced.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Promotion to: SPINDLE WOOD-CARVER; WOOD TURNER.

Transfer from and to: CHUCKING-MACHINE OPERATOR; ROUNDING-MACHINE OPERATOR; VARIETY-LATHE OPERATOR.

Other relationships: This job may be added to the usual duties of VARIETY-LATHE OPERATOR.

The machine adjustments may be performed by a WOODWORKING-MACHINERY SET-UP MAN.

Specialized Qualifications

General woodworking experience, gained through work about a woodworking establishment, is desirable.

Special Information

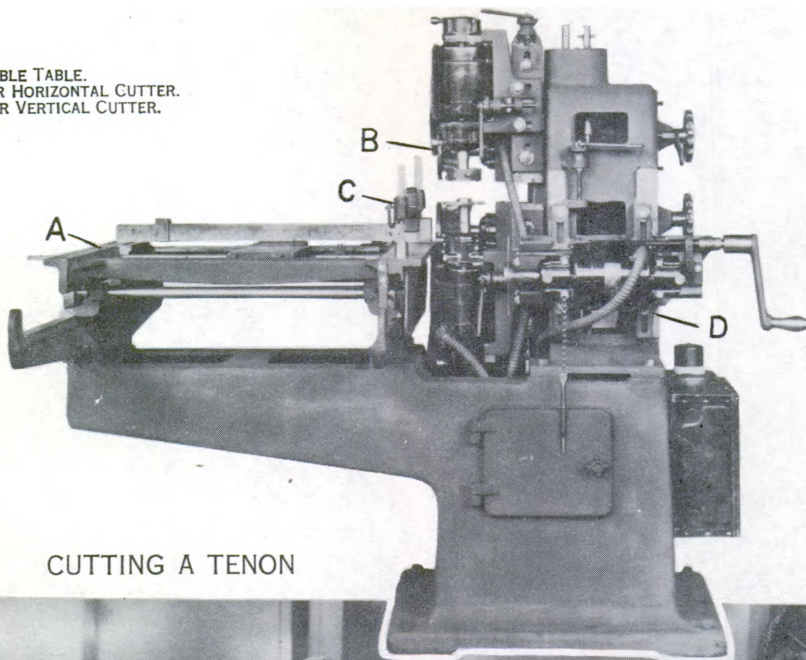
In some establishments another worker may set up the lathe, in which case this job involves only the repetitive duty of inserting and removing stock.

Determine: Whether worker will sharpen cutter knives.

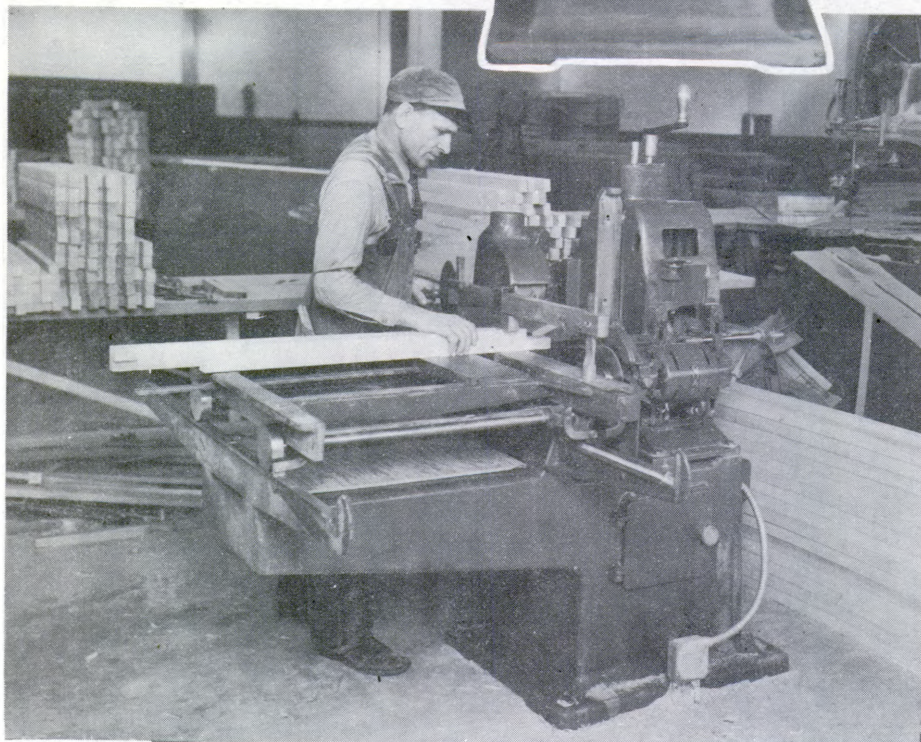
Other machines operated, such as chucking machine, rounding machine, or variety lathe.

SINGLE-END TENONER

A. MOVABLE TABLE.
B. UPPER HORIZONTAL CUTTER.
C. LOWER VERTICAL CUTTER.
D. SAW.



CUTTING A TENON



TENON-MACHINE OPERATOR TENONER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Cuts rectangular projections (tenons) on ends of pieces of wood with a combination planing and sawing machine, by clamping pieces on table and pushing table past rotating bits and saws, or by merely placing pieces on conveyor chain that carries them through machine.

Work Performed

1. Adjusts machine to shape required tenon by selecting and bolting in place appropriate cutter blades and saw and by turning handwheels that adjust the position of each. Frequently a sample piece is used as a guide for these adjustments.
2. Clamps piece of wood in position on machine table, one after another, and pushes table each time to force stock past the cutters and saw.
3. When operating a double-end tenoner: Adjusts space between the two sets of cutters for the length of the stock to be worked upon and also that between the feed conveyor chain and endless belt above it to hold the stock firmly against the conveyor chain; starts machine and merely places pieces of stock across conveyor chain that carries them past the two sets of saws and bits.

Equipment

Single-end tenoner: A machine that cuts tenons on the ends of a piece of wood to be used in joining the piece to others in which corresponding mortises have been cut. The machine consists essentially of a frame, a movable table on which the work is supported, two vertical and two horizontal shafts (spindles) for rotary cutters that shape the tenon, and a saw that cuts the tenon to length. Work is clamped to the table and pushed past the rotary cutters and saws that shape the tenon automatically.

Double-end tenoner: Essentially two single-end tenoners that are set up side by side with a conveyor chain between. Pieces of wood are carried through on the conveyor chain and have a tenon formed at each end as they pass.

Relation to Other Jobs

Promotion from: TENON-MACHINE OFF-BEARER; WOODWORKER APPRENTICE; any woodworking machine operator helper.

Promotion to: LAY-OUT MAN.

Transfer from and to: CHAIN MORTISE-MACHINE OPERATOR; POCKET CUTTER OPERATOR; PULLEY-MORTISE-MACHINE OPERATOR; SHAPER OPERATOR.

Other relationships: The setting up of the machine may be performed by a WOODWORKING-MACHINERY SET-UP MAN.

This job may be added to the usual duties of CUT-OFF-SAW OPERATOR, JOINTER OPERATOR, PLANER OPERATOR, RIPS AW OPERATOR, or SHAPER OPERATOR.

The duties of HOLLOW-CHISEL MORTISE-MACHINE OPERATOR or HORIZONTAL BORING-MACHINE OPERATOR may be added to this job.

Specialized Qualifications

Precision in setting up machine is necessary to produce tenons of exact size specified.

Ability to interpret blueprints required in order to produce work exactly as specified.

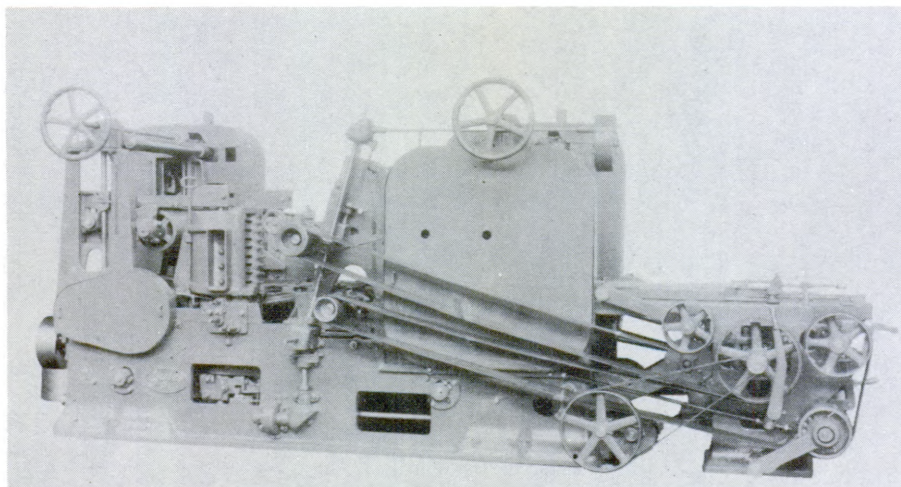
Should be able to identify the more common woods and know their working characteristics, such as ease and difficulty in cutting.

Special Information

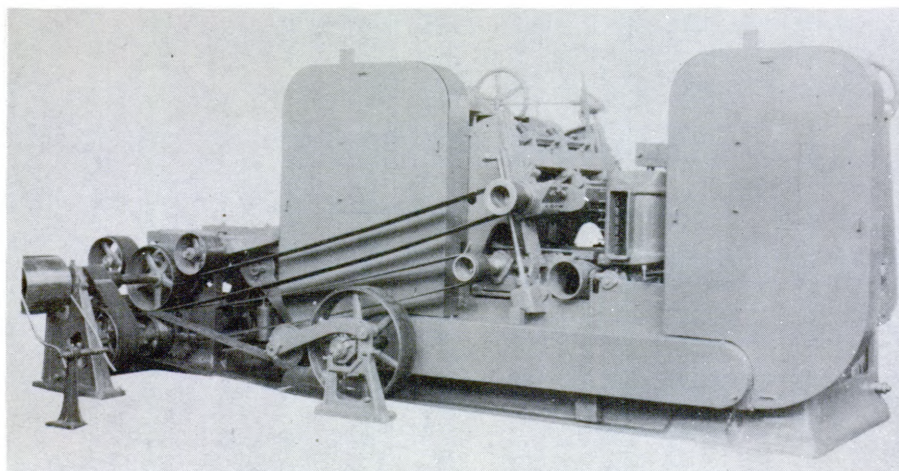
Determine: Other machines operated, such as chain-mortise machine, pocket cutter, pulley-mortise machine, or hollow-chisel mortise machine.

Whether worker will lay out work.

Whether worker will sharpen cutter knives.



TWO VIEWS OF A TIMBER SIZER



TIMBER-SIZER OPERATOR FOUR-SIDED PLANER OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS

Job Summary

Pushes timbers, one after another, into feed rollers that force them through a timber sizer, a large heavy-duty planing machine which surfaces and cuts timbers to required dimensions; carefully adjusts cutter blades and feed rollers by turning hand crank and by reference to calibrated scale to accommodate stock of different sizes.

Work Performed

1. Sets machine to plane timber to required dimensions by turning cranks that adjust the spacing between the two horizontal cutters and between the two vertical cutters, being guided by calibrated scales that show this spacing in fractions of an inch; raises or lowers feed rollers to correct spacing for the timbers by turning a crank, and starts machine.
2. Lifts timber onto feed-table rollers with aid of TIMBER-SIZER OPERATOR HELPER or by working the controls of a power-driven conveyor chain; pushes timbers against guide fence and into feed rollers that force the timbers past the rotating cutter knives.
3. May sharpen knives on an emery wheel after removing them from machine, or may straighten their edges (joint them) by holding an abrasive stone against the knives while the machine is in motion.
4. May supervise a TIMBER-SIZER OPERATOR HELPER and one or more laborers who help guide timbers into machine.

Equipment

Timber sizer: A heavy-duty, power-fed machine for dressing timbers on all four sides with rotary cutters. It consists of one or more sets of power-rotated in-feed rollers, two horizontal rotary cutter heads carrying the knives which dress the upper and lower surfaces of timbers, and two vertical rotary cutter heads which dress the sides. Cranks provide for the adjustment of the upper horizontal cutter head, the vertical cutter heads, the feed rollers, and the fence which guides the timbers past the cutting knives.

Relation to Other Jobs

Promotion from: **TIMBER-SIZER OPERATOR HELPER.**

Other relationships: This job may be added to the usual duties of **EDGER MAN, PLANER OPERATOR, RESAW OPERATOR, or TRIMMER MAN.**

Specialized Qualifications

General knowledge of wood planing process is desirable.

Must be robust for handling heavy timbers.

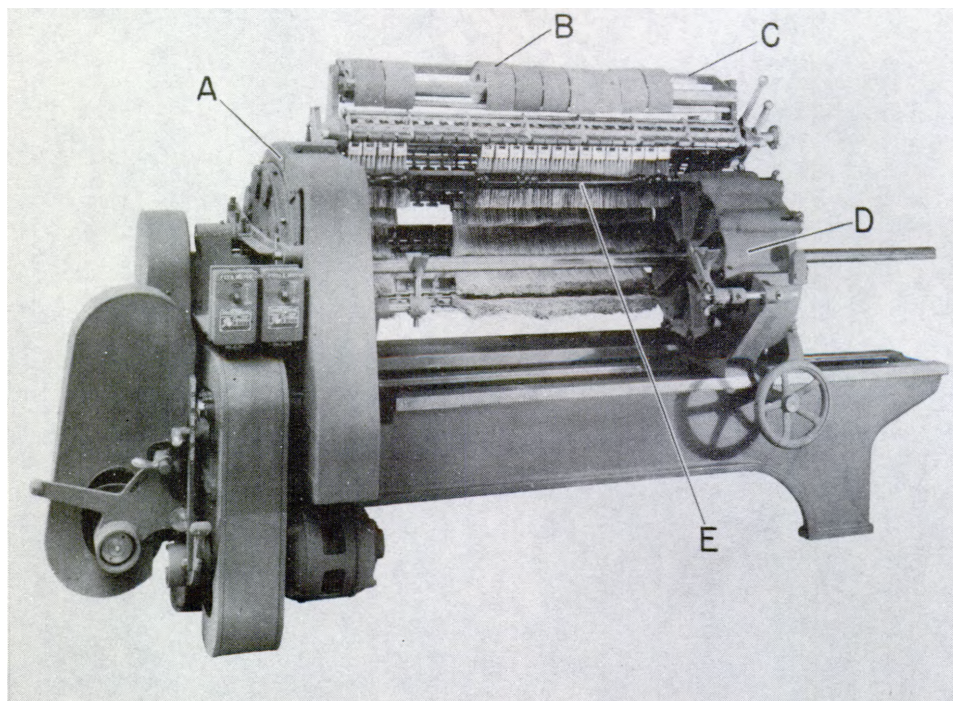
Special Information

Determine: Whether worker will sharpen cutter knives.

Whether worker will be required to change knives in cutter heads.

Other machines operated, such as edger, planer, molder, or trimmer.

AUTOMATIC TURNING SANDER



- A. HEADSTOCK.
- B. REELS OF SANDPAPER.
- C. RACK.
- D. TAILSTOCK.
- E. OBJECT TO BE SANDED.

Turning-Sander Operator 6-33.122

TURNING SANDER OPERATOR
AUTOMATIC SANDING-MACHINE OPERATOR
AUTOMATIC MULTIPLE-SANDER OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Rapidly slips lathe-turned objects, such as baseball bats or tenpins, one at a time, between the centers of a mechanically actuated holding device on the carriage of an automatic machine that smooths them with sandpaper; oils machine periodically, and cleans it with a brush, with waste, or with a blast of compressed air. May perform the complex tasks of setting up and adjusting the machine in establishments where the usual practice of delegating them to a FOREMAN or WOODWORKING-MACHINERY SET-UP MAN is not followed.

Equipment

Automatic turning sander: A machine for automatically smoothing the surface of lathe-turned objects with sandpaper. It consists of a base, a rotating drum in a fixed support (headstock) at one end of the bed, another rotating drum mounted on a carriage (tailstock) which can be moved along the bed, and a rack that supports reels of sandpaper and backing brushes.

The headstock carries a number of live centers and the tailstock carries an equal number of dead centers, both sets of centers of which are designed to pick up turnings automatically, to support and rotate them, to press them in turn against sanding surfaces of various coarseness and to release them at the rear of the machine. The rack supports reels of sandpaper of various degrees of coarseness and adjustably mounted stiff brushes that press the sandpaper into contact with the turnings. The sanding is entirely automatic, the worker merely placing the turnings in a rack at the front of the machine.

Working Conditions

The work is carried on in a sawdust-laden atmosphere.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; a laborer.

Transfer from and to: BELT SANDER; COMBINATION SANDER; CYLINDER SANDER OPERATOR; FLEXIBLE-ARM SANDER OPERATOR; HAND SANDER.

Other relationships: This job and any or all of the jobs of **BELT SANDER, COMBINATION SANDER, CYLINDER SANDER OPERATOR, FLEXIBLE-ARM SANDER OPERATOR, and HAND SANDER** may be combined into one job entitled **SANDER** or **SANDER HAND**. This job may be added to the usual duties of any other woodworking machine operator.

The machine adjustment may be performed by a **FOREMAN** or **WOOD-WORKING-MACHINERY SET-UP MAN**.

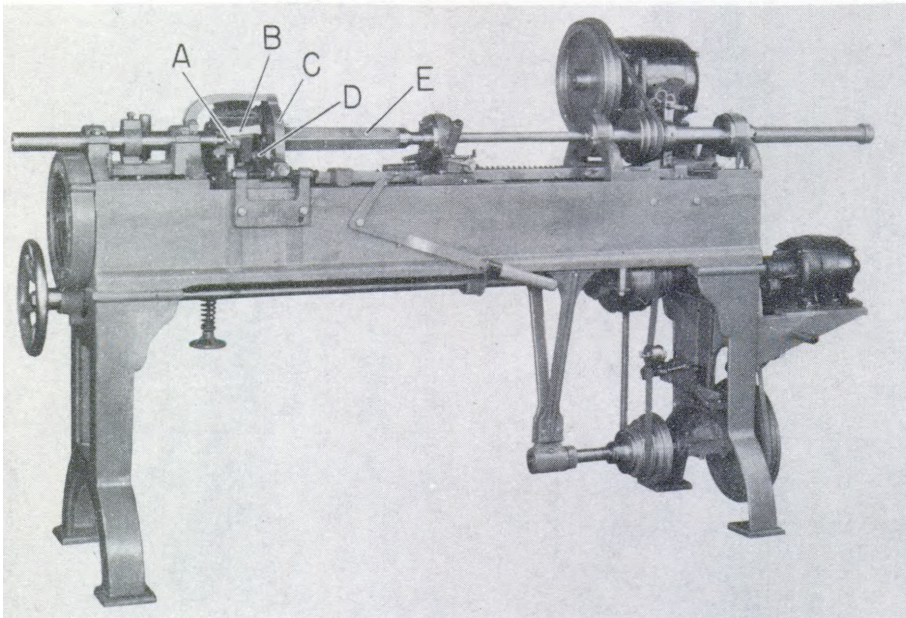
Specialized Qualifications

General experience about machinery or mechanical equipment of a wood-working plant is desirable.

Special Information

Determine: Whether worker will be required to set up machine.

AUTOMATIC VARIETY LATHE



- A. WOOD BIT.
B. SHAPING KNIFE.
C. RING.
D. CUT-OFF KNIFE
E. WOOD.

VARIETY-LATHE OPERATOR AUTOMATIC LATHE OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE WOODWORKING MACHINE JOBS

Job Summary

Inserts blanks (lengths of square wooden stock) in a previously set up, special lathe that automatically shapes the wood into such articles of circular cross section as handles, knobs, and spools. May also set up machine, in which event this simple repetitive job is changed to one requiring mechanical ability and considerable care.

Work Performed

1. May set up machine: Selects appropriate chuck, guide ring, and cutter knives, and clamps each in place on machine; carefully alines cutter blades to cut wood to desired shape; adjusts the positions of cams and levers that control the automatic cycle in which the various tools are pressed against the work.
2. Slides lathe carriage and tailstock away from headstock, inserts end of wooden stock piece in guide ring of carriage, and guides free end of stock into headstock chuck as carriage advances; replaces stock piece when it is used up and removes completed articles from receptacle on machine.

Equipment

Automatic variety lathe: A machine for automatically and rapidly shaping such approximately cylindrical objects as handles, knobs, or spools. The machine consists of a bed, a headstock, a tailstock, and a carriage. The headstock is fixed rigidly upon one end of the bed while the carriage and tailstock are designed to move along the bed on rails. The headstock supports a chuck (work holding device) mounted on the end of a horizontal rotary shaft (spindle) and is designed to support and rotate the work. The carriage supports a ring that guides the free end of the work, a stationary knife that shaves the rotating woodstock to cylindrical shape, and two automatically controlled knives, one of which is accurately ground so that it shaves the wood to its final shape and the other of which merely cuts off the completed article. The tailstock supports a wood bit which can be forced through the wooden article automatically when a hole is called for in the design.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Promotion to: WOOD TURNER.

Transfer from and to: CHUCKING-MACHINE OPERATOR; ROUNDING-MACHINE OPERATOR; SWING-TYPE LATHE OPERATOR.

Other relationships: The duties of CUT-OFF-SAW OPERATOR or SWING-TYPE LATHE OPERATOR may be added to this job.

Adjustment of the machine may be performed by WOODWORKING-MACHINERY SET-UP MAN.

Specialized Qualifications

General familiarity with wood turning process and machines, gained through work at a woodworking plant, is desirable.

Special Information

Determine: Whether worker will set up machine.

Whether worker will sharpen knife blades.



MITERING THE END OF A BOARD



BEVELING THE EDGE OF A BOARD

VARIETY-SAW OPERATOR
BENCH-SAW OPERATOR
COMBINATION-SAW OPERATOR
UNIVERSAL-SAW OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Cuts boards to length or width, bevels or miters their ends or edges, and cuts grooves (dadoes) in their surfaces on a special circular sawing machine.

Work Performed

1. Prepares saw for required work by selecting appropriate saw disk and bolting it to saw shaft, clamping a metal guide (fence) in position on saw table, and, when work is to be beveled, tilting the saw table to required angle by turning a handwheel.
2. Cuts board to width by holding one edge against guide fence and pushing board against saw blade by hand.
3. Cuts board to length and squares or miters its ends by resting it against a sliding guide (cut-off gage), which has been set to the required angle, and pushing gage along a slot in the table, thus forcing end of board against saw blade and severing it.
4. Cuts dadoes in surface of a piece of wood with a special saw disk or combination of disks of sufficient thickness to make a cut of the desired width; controls the depth of the dado by adjusting the height of the saw table until the saw projects above its surface only enough to saw grooves to the required depth.

Equipment

Variety saw: A sawing machine which, by the choice of suitable circular blades and adjustment of the saw table, can be rapidly adapted to sawing or grooving wood with or across the grain and at various angles.

The machine consists essentially of a power-rotated shaft upon which various saws can be mounted and an adjustable table through which the saw projects. The table can be raised, lowered, or tilted by turning handwheels to adjust it for different kinds of work, and two guides on its surface can be set at correct distances or angles to guide the work.

Working Conditions

The worker is subject to loud, monotonous noise from the saw and to sawdust-laden air.

The principal hazard is that of cutting hands on the saw.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Promotion to: FOREMAN.

Transfer from and to: BAND SCROLL-SAW OPERATOR; CUT-OFF-SAW OPERATOR; JIGSAW OPERATOR; KNOT SAWYER; RIPSAW OPERATOR.

Other relationships: Grooving may be performed by a DADO-MACHINE OPERATOR.

Squaring the ends of pieces of wood may be performed by an EQUALIZER-SAW OPERATOR.

The duties of this job may be specialized and entitled MITER SAWYER or SAWYER (BLOCK SAW), according to the purpose for which the saw is used.

The duties of CUT-OFF-SAW OPERATOR and RIPSAW OPERATOR may be added to this job.

Specialized Qualifications

Woodworking apprenticeship may be required.

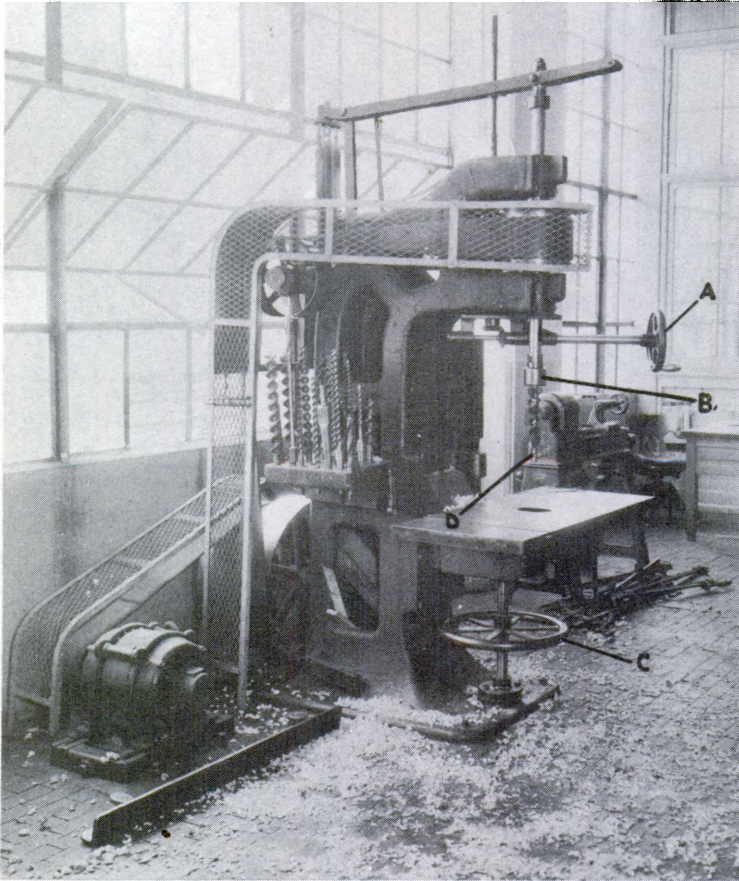
Should have a general knowledge of kinds, grades, and working characteristics of wood.

Ability to read and interpret blueprints is required in order to produce work exactly according to specifications.

Special Information

Determine: Whether worker will sharpen and set saws.

VERTICAL BORING MACHINE



- A. FEED CONTROL.
B. CHUCK.
C. VERTICAL TABLE ADJUSTMENT.
D. BIT.

Boring-Machine Operator, Vertical 6-33.411

VERTICAL BORING-MACHINE OPERATOR

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE WOODWORKING MACHINE JOBS

Job Summary

Bores holes in wooden articles on a vertical boring machine, by holding or clamping stock in position against fence (guide) on machine table and depressing pedal to raise table until rotating bit is forced through wood. Makes such relatively simple machine adjustments as installing bits of appropriate size in chuck, moving and clamping fence in position to bore holes in stock at desired point, and raising or lowering table to limit depth to which bit penetrates wood.

Equipment

Vertical boring machine: A machine for drilling holes in wood with a vertical rotary bit. The machine consists essentially of a vertical column that serves as a frame, a vertical power-rotated shaft (spindle) equipped with a clamp (chuck) to engage bits, and a small, adjustably mounted table upon which the work is supported. Wooden articles are held or clamped in correct position on the machine table and a lever or pedal is moved to force the rotating bit into the wood.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; any woodworking machine operator helper.

Promotion to: HOLLOW-CHISEL MORTISE-MACHINE OPERATOR; ROUTER OPERATOR.

Transfer from and to: HORIZONTAL BORING-MACHINE OPERATOR; MULTIPLE-SPINDLE BORING-MACHINE OPERATOR.

Other relationships: This job may be added to the usual duties of COMBINATION SANDER or JOINTER OPERATOR.

Specialized Qualifications

Woodworking experience gained from apprenticeship or work about a woodworking establishment is desirable.

Special Information

Determine: Whether work is marked (laid out) for this worker or is laid out by this worker from blueprints or oral instructions.

THE ASSEMBLING AND FINISHING JOBS

INTRODUCTION

These jobs are those of the Wooden Article Fabricating Division concerned with the manual completion of woodwork by the assembling of component units and the smoothing and painting of wooden surfaces.

They require a fundamental knowledge very similar to that for comparable jobs in other industries, but familiarity with woodworking is essential. From this point of view, transfers will be limited largely to woodworking branches of such industries as Construction and Furniture Manufacturing, except for those workers engaged in painting who are readily transferable to and from similar jobs in other industries with little or no supplementary training.

Within the Lumber and Lumber Products Industries the workers of this group are most closely related to those of the Woodworking Machine Group, whose work they complete.

The principal qualifications for employment in the Assembling and Finishing Jobs are familiarity with the particular type of work to be performed, ability to follow blueprints or shop drawings, and, particularly, the accuracy and neatness which are essential to the production of commercially acceptable articles.

JOB DESCRIPTIONS

DIPPER

GLAZIER

GLUEMAN

HAND SANDER

PAINTER (PRIMING)

SASH, DOOR, AND FRAME ASSEMBLER

SPRAY PAINTER

VENETIAN-BLIND ASSEMBLER

WIRE SCREEN INSTALLER

DIPPER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE ASSEMBLING AND FINISHING JOBS

Job Summary

Coats light wooden articles, such as implement handles, baseball bats, and tenpins, with paint by dipping them into vats.

Work Performed

1. Usually prepares painting material by selecting proper ingredients and mixing them in prescribed proportions in dipping vat or tank. Procures articles to be dipped, sometimes from location of previous operation.
2. Dips articles in vat of paint and splashes paint upon them singly, or, more commonly, in groups. When articles are dipped in groups: Places them in a dipping rack and lowers rack into vat by hand or with a chain hoist; shakes or agitates rack in the vat to make certain that paint covers all parts of the articles; drains paint from vat into storage tank and cleans vat with a paint solvent such as turpentine at end of work period.

Articles are usually left upon the dipping rack which then serves as a drying rack, the entire rack after draining being moved aside or hung on supports to dry. In large and completely mechanized plants the worker may never touch the articles dipped, his duty being confined to maintaining the proper quantity and consistency of paint in the tanks and to watching the passage of articles on a conveyor through the paint to be sure that they are completely covered.

Working Conditions

The work is carried on in an atmosphere contaminated with paint fumes. Prolonged work with paints containing lead compounds may induce lead poisoning.

Relation to Other Jobs

Promotion from: A laborer.

Promotion to: PAINTER (PRIMING).

Other relations: The duties of MOUNTER may be added to this job.

This job is frequently added to the usual duties of either PAINTER (FINISHING), PAINTER (PRIMING), or SPRAY PAINTER.

This job and the jobs of PAINTER (FINISHING), PAINTER (PRIMING), and SPRAY PAINTER may be combined into one job entitled PAINTER.

The paint may be mixed for this worker by FOREMAN, PAINTER (FINISHING), or PAINTER (PRIMING).

Specialized Qualifications

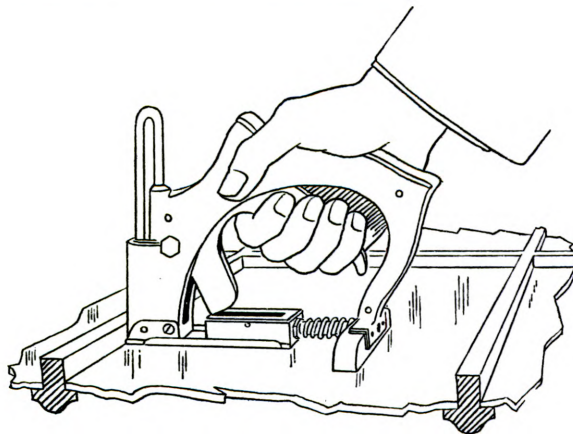
Experience in mixing paint is desirable.

Special Information

Determine: Whether worker will mix paints.

Kind of articles, such as novelties, shaped articles, or toys,
that worker will dip.

INSERTING GLASS IN A FRAME

DETAIL OF A POINT
DRIVER

GLAZIER
GLASSWORKER
GLASSMAN
GLASS SETTER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE ASSEMBLING AND FINISHING JOBS

Job Summary

Installs glass panes in doors and windows with glazier's points and putty or strips of molding and nails. Measures and marks off glass to required dimensions, and scratches surface of glass with a glass cutter; breaks glass by pressing pane downward against edge of cutting table; inserts glass in frame and secures it in place with glazier's points driven into frame and putty, or with a strip of molding nailed to frame.

While the work performed in installing glass in a frame is relatively simple, some care is needed in cutting the glass.

Equipment

Point driver: A device used to drive glazier's points into wood to hold glass firmly in place. Essentially, it is a spring-operated hammer equipped with a magazine from which glazier's points are fed automatically into position before the hammer block that strikes and drives a point each time a trigger is pulled.

Working Conditions

There is danger of cutting the hands on sharp edges of glass.

Relation to Other Jobs

Promotion from: GLAZIER APPRENTICE; GLAZIER HELPER.

Promotion to: SASH, FRAME, AND DOOR ASSEMBLER.

Other relationships: Putty may be applied by PUTTY RUNNER.

The duties of WIRE SCREEN INSTALLER may be added to this job.

This job and the jobs of SASH, DOOR, AND FRAME ASSEMBLER, and WIRE SCREEN INSTALLER may be combined into one job entitled ASSEMBLER.

Specialized Qualifications

Careful worker desirable in order to cut and set glass accurately and quickly.

Special Information

Determine: Whether worker will use and identify different kinds and grades of glass.

Whether worker will set plate glass.

Whether worker will do special, fancy, or art-glass glazing.

Ownership of hand tools.

GLUEMAN
GLUER
GLUE-ROOM MAN

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE ASSEMBLING AND FINISHING JOBS*Job Summary*

Applies glue to the edges or surfaces of boards or strips of wood used in making such wide wooden articles as panels and table tops, and clamps the assembly together until the glue dries.

Work Performed

1. Obtains stock which has been prepared for gluing. Prepares glue by mixing glue powder with water, and places it in the glue spreader or in a pail.
2. Warms the surface of boards to be joined thoroughly in an oven or on a heated table, and applies the glue with a brush or by passing the board over a roller in the glue spreader.
3. Joins the pieces carefully, noting guide marks on edges or surfaces, and clamps the assembled unit with a bar clamp or glue press, supporting the pieces with backing boards to prevent buckling.
4. Releases clamping pressure after specified length of time and sends the glued unit to other workers.

Equipment

Bar clamp: A bar with a movable jaw at one end and a fixed one at the other, used to hold wooden pieces together tightly while glue is setting.

Glue press: A device used to exert pressure evenly on large surfaces. The press is essentially a heavy metal table with metal columns along its sides. The columns support beams above the table. Through the beams extend large, vertical, screw-threaded shafts with swivel plates at their lower ends. The shafts are raised and lowered by cranks or handwheels to clamp wood to the table.

Glue spreader: A machine used to apply glue to boards. It consists of a finely corrugated metal roller partly submerged in a tank of liquid glue.

Relation to Other Jobs

Promotion from: GLUEMAN HELPER; a laborer.

Promotion to: CABINETMAKER; HEAD GLUEMAN; LAY-OUT MAN.

Transfer from and to: SASH, DOOR, AND FRAME ASSEMBLER.

Other relationships: The duties of this job may be divided into two separate jobs entitled GLUE-CLAMP OPERATOR and GLUE-PRESS OPERATOR.

Specialized Qualifications

Ability to interpret blueprints and sketches is required to produce assemblies according to specifications.

A general background of woodworking and a knowledge of the effectiveness of glue in joining various woods is desirable.

Special Information

Determine: Whether worker will use a glue press or bar clamp, or both.

Extent of individual discretion used in heating different kinds of boards and wood in preparation for glue.

HAND SANDER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE ASSEMBLING AND FINISHING JOBS

Job Summary

Smooths and cleans assembled wooden articles with sandpaper by hand to prepare them for painting, by one or more methods according to the type of article.

Work Performed

1. Mounts lathe-turned articles in a lathe and holds strips of sandpaper against rotating articles.
2. Places other wooden articles on workbench or clamps them in a bench vise and manually rubs all surfaces with sandpaper folded over a wooden block.
3. May putty small holes and cracks in surface of article with a putty knife; may deliver articles to painting or shipping departments.

Equipment

Lathe: A machine that supports a wooden object and rotates it about a central axis while it is shaped with knives or smoothed with sandpaper.

Working Conditions

Inside, dusty, and noisy.

Relation to Other Jobs

Promotion from: WOODWORKER APPRENTICE; a laborer.

Promotion to: FOREMAN.

Transfer from and to: BELT SANDER; COMBINATION SANDER; CYLINDER SANDER OPERATOR; FLEXIBLE-ARM SANDER OPERATOR; TURNING SANDER OPERATOR.

Other relationships: This job may be added to the usual duties of PAINTER (PRIMING) or any other woodworking machine operator.

This job and any or all of the jobs of BELT SANDER, COMBINATION SANDER, CYLINDER SANDER OPERATOR, FLEXIBLE-ARM SANDER OPERATOR, and TURNING SANDER OPERATOR may be combined into one job entitled SANDER or SANDER HAND.

Lathe sanding may be performed by a LATHE SANDER, or it may be added to the usual duties of WOOD TURNER.

Specialized Qualifications

General woodworking experience gained from working about a wood-working establishment is desirable.

Special Information

Determine: Extent of lathe sanding.

Type of articles sanded, such as doors, stair crooks, windows, or stair spindles.

PAINTER (PRIMING)

PRIMER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE ASSEMBLING AND FINISHING JOBS

Job Summary

Measures and mixes prescribed quantities of white lead, linseed oil, and drier to prepare a thin and fluid primer type of paint; and brushes primer into the wood of such articles as door and window sashes, working it well into the pores with brush. Where nail holes occur, usually first daubs these with primer and then fills them with putty before the over-all priming coat is applied. Cleans brushes with a paint solvent such as turpentine.

Relation to Other Jobs

Promotion from: DIPPER.

Promotion to: PAINTER (FINISHING); SPRAY PAINTER.

Other relationships: The duties of DIPPER may be added to this job.

This job and the job of PAINTER (FINISHING) are frequently combined into one job entitled FINISHER.

The mixing of paint may be performed by PAINTER (FINISHING) or by FOREMAN.

This job and the jobs of DIPPER, PAINTER (FINISHING), and SPRAY PAINTER may be combined into one job entitled PAINTER.

Specialized Qualifications

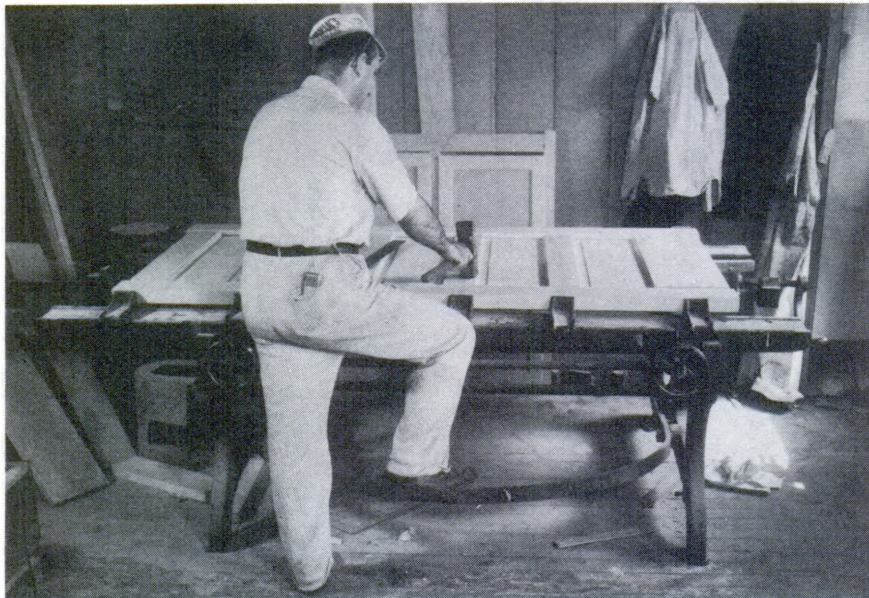
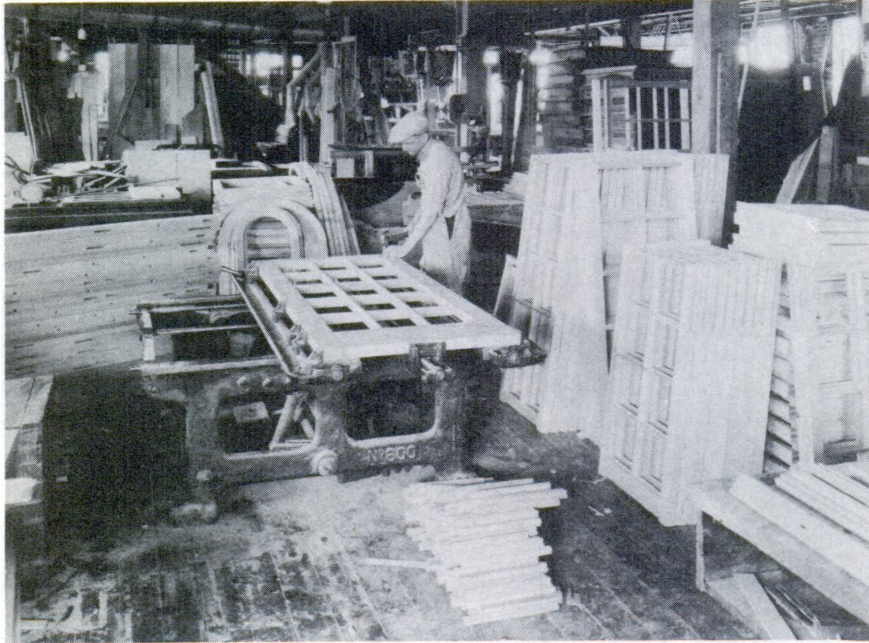
General experience at ordinary painting is desirable.

Special Information

Determine: Type of articles to be painted, such as millwork, novelties, or toys.

Whether dry or ready mixed ingredients will be used to make paint.

ASSEMBLING A FRENCH DOOR ON A GLUE PRESS



ASSEMBLING A PANELED DOOR ON A GLUE PRESS

Sash, Door, and Frame Assembler 6-34.070

SASH, DOOR, AND FRAME ASSEMBLER

SASH, DOOR, AND BENCH CARPENTER

KNOCK-UP MAN

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE ASSEMBLING AND FINISHING JOBS

Job Summary

Fits and fastens together parts of doors, sashes, and frames in a glue press by applying glue to the surfaces joined, carefully alining joints with a square, and tightening the assembled article in press with handwheels. Frequently drives nails through joints to hold the article together more securely.

Equipment

Glue press: A device for tightly clamping together parts of large, flat articles, such as doors and window sashes. The press consists of a large, heavy frame and a clamping unit. The frame, which is mounted on legs, supports four or more metal jaws mounted on two screw-threaded shafts, so that they can be moved by turning handwheels to clamp rectangles of different sizes. Various degrees of pressure can be applied to the clamps by moving a pedal which can be locked at any desired position.

Relation to Other Jobs

Promotion from: GLAZIER; SASH, DOOR, AND FRAME ASSEMBLER HELPER; WIRE SCREEN INSTALLER; WOODWORKER APPRENTICE.

Promotion to: CABINETMAKER; LAY-OUT MAN; STAIR BUILDER.

Transfer from and to: GLUEMAN.

Other relationships: The duties of this job may be specialized and entitled DOOR-CLAMP OPERATOR, FRAME MAKER, or SASH-CLAMP OPERATOR, according to the product assembled.

This job and the jobs of GLAZIER and WIRE SCREEN INSTALLER may be combined into one job entitled ASSEMBLER.

The duties of POCKET CUTTER OPERATOR and PULLEY-MORTISE-MACHINE OPERATOR may be added to this job.

Specialized Qualifications

Ability to read blueprints and sketches and to use simple hand tools such as hammer, paint brush, and screw driver required.

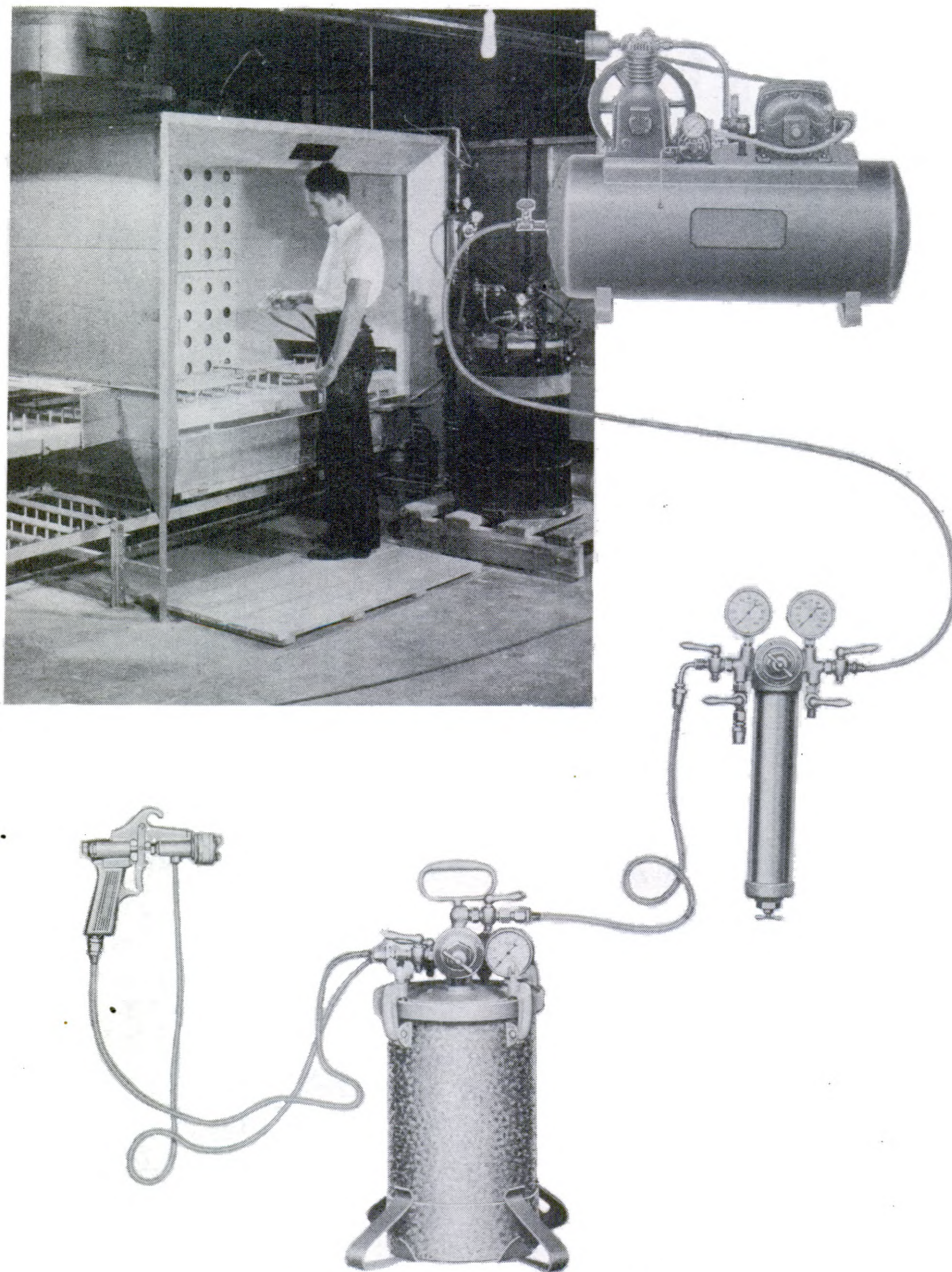
A general background of woodworking experience is desirable.

Special Information

Determine: Products to be assembled.

Ownership of hand tools.

SPRAY BOOTH



SPRAY GUN AND COMPRESSOR

SPRAY PAINTER
AIR-BRUSH OPERATOR
SPRAY-GUN OPERATOR
SPRAYER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING
THE ASSEMBLING AND FINISHING JOBS*Job Summary*

Sprays paint evenly on various types of wooden surfaces for protection and decoration, with a spray gun, preparing necessary paints and cleaning the gun frequently.

Work Performed

1. Selects, measures, and mixes the necessary ingredients to prepare paint, lacquer, or varnish of specified color, and of proper consistency for use in a spray gun; starts gun by pressing trigger and adjusts nozzle and valves to obtain correct pressure and consistency of spray; starts ventilating fans to draw paint fumes away from spray booth.
2. Directs gun skillfully to distribute paint evenly; touches up work with brush when necessary; applies stencils and masking tape to parts of articles which are to be sprayed with two or more colors.
3. Dismantles, cleans, and assembles spray gun at end of work period; may do sandpapering and puttying, and is responsible for cleanliness of spray booth.

Equipment

Spray booth: A mechanically ventilated enclosure in which articles are sprayed and from which paint fumes are removed by an exhaust fan.

Spray gun: A device for applying atomized paint to surfaces. Air under pressure sucks paint from an attached container and carries it through an adjustable nozzle where air and paint are mixed and atomized. Adjustment valves on air line and nozzle permit the worker to obtain a stream of atomized paint of the desired concentration and uniformity.

Air compressor: A power-driven pump that forces air under pressure into a tank from whence it can be drawn as needed to operate such equipment as a spray gun.

Working Conditions

The work is carried on in an atmosphere contaminated with paint fumes. Prolonged work with paints containing lead compounds may induce lead poisoning.

Relation to Other Jobs

Promotion from: DIPPER; PAINTER (PRIMING).

Promotion to: FOREMAN; PAINTER (FINISHING).

Other relationships: The duties of DIPPER may be added to this job.

This job and the jobs of DIPPER, PAINTER (FINISHING), and PAINTER (PRIMING) may be combined into one entitled PAINTER.

This job may be added to the usual duties of PAINTER (FINISHING).

Specialized Qualifications

An experienced painter with general knowledge of a spray gun may be hired and trained for the job.

Ability to do striping by hand painting may be required.

Special Information

Determine: Amount of freehand touching up, striping, or simple art work required.

Extent of and ability to match colors required.

Make and type of spray gun.

Whether worker will be required to make and use stencils.

Type of articles to be painted.

VENETIAN-BLIND ASSEMBLER**LUMBER AND LUMBER PRODUCTS****WOODEN ARTICLE FABRICATING****THE ASSEMBLING AND FINISHING JOBS***Job Summary*

Assembles the component parts of venetian blinds, special window shades made of horizontal wooden slats so supported by strips of cloth tape that the slats may be turned to admit or exclude light. The entire assembly of slats and tape is suspended from a window frame by a single crosspiece (headrail), and may be raised or lowered like a shade by a cord. All slats are connected to a master slat (tilt rail) that is turned by means of a tilting device controlled by another cord.

Work Performed

1. Screws or nails mounting brackets, cord pulleys, cord brake, and tilting device to headrail, and fastens tilt rail to mounting brackets and tilting device; cuts strips of special cloth tape to length, and tacks one end of each to headrail.
2. Hangs entire assembly on hooks of an upright frame, and thrusts the blind slats through loops in the strips of tape; tacks bottom rail to free ends of tape; threads lengths of cord through pulleys, brake, and holes in slats and rails, and fastens another cord to tilting device; manipulates cords to test assembly and makes any necessary adjustments to pulleys and tilting device.

Relation to Other Jobs

Promotion from: VENETIAN-BLIND ASSEMBLER HELPER.

Promotion to: VENETIAN-BLIND INSTALLER.

Specialized Qualifications

Careful worker desirable in order to assemble blinds accurately and quickly.

Special Information

This job should not be confused with VENETIAN-BLIND MAKER.

The latter may involve the sawing material to length, the boring necessary holes, and painting the slats and rails.

Determine: Ownership of hand tools.

Sash, Door, and Frame Assembler 6-34.070

WIRE SCREEN INSTALLER
SCREEN WIRER
SCREENER

LUMBER AND LUMBER PRODUCTS

WOODEN ARTICLE FABRICATING

THE ASSEMBLING AND FINISHING JOBS

Job Summary

Installs wire-mesh screen in doors, windows, and panel screen frames by hand; cuts wire screen with tin shears to dimensions slightly larger than frame openings, alines the screen with the openings it is to cover, forces edge of screen into the groove around the frame opening with a screen roller or setting tool, and nails strips of prepared molding over inserted edge of the screen to hold it in place.

Equipment

Screen roller: A metal disk attached to a handle, used to force screen into the groove that extends around the screen frame.

Setting tool: A T-shaped tool consisting of cross arm or blade attached to a handle. It is also used to force wire mesh into grooves in the screen frame.

Relation to Other Jobs

Promotion from: WIRE SCREEN INSTALLER HELPER.

Promotion to: SASH, DOOR, AND FRAME ASSEMBLER.

Other relationships: This job and the jobs of GLAZIER, and SASH, DOOR, AND FRAME ASSEMBLER may be combined into one job entitled ASSEMBLER.

Specialized Qualifications

A background of general woodworking experience is desirable.

Special Information

Determine: Whether worker will be required to sharpen cutting shears.

THE MACHINE OPERATOR HELPERS

INTRODUCTION

This is a group of low-skilled workers performing tasks that aid the Wood-working Machine Operators to produce wooden articles rapidly and efficiently.

Their principal function is to provide an extra pair of hands. Working under the direct supervision of the machine operators, these workers perform such minor tasks as obtaining materials and small equipment, carrying and moving work, and making notations on job sheets concerning production. They may also assist in cleaning, oiling, adjusting, or tooling machines by performing such tasks as obtaining tools and supplies, holding machine parts while machine operator fastens them in place, and assisting in the feeding of lumber into the machines.

Thus, with the responsibility for their work placed upon the machine operators, these workers may do more or less than is described, according to their individual abilities rather than job requirements.

They are in danger of injuring their hands and fingers. The most likely of these injuries are lacerations from wood splinters, bruises and broken bones from falling lumber, and serious cuts from accidental contact with the various saw blades and knives. In this respect a machine operator helper has a more hazardous job than has the similarly low-skilled laborer.

Employment qualifications for all machine operator helpers are lenient and similar in that no experience is required, although familiarity with wood-working is desirable.

Because the job relationships for each of the machine operator helpers is identical, they have been expressed in the following table which applies equally to all of the jobs.

Promotion from: A laborer.

Promotion to: Operation of any machine for which the worker has become qualified through experience gained as a helper.

Transfer from and to: Any other machine operator helper job, with but slight additional training.

Other relationships: The duties of two or more machine operator helpers may be combined when such combination is suited to the requirements of the establishment in which the jobs exist.

The more typical machine operator helper jobs are briefly defined in the following section.

JOB DEFINITIONS**CUT-OFF-SAW OPERATOR HELPER**

(CUT-OFF-SAW TAILER)

(CUT-OFF-SAW OFF-BEARER)

Assists CUT-OFF-SAW OPERATOR by pushing hand trucks of material to and from the workplace, by lifting sawed lumber from saw table, and by sweeping and cleaning about the machine.

EDGER TAILER

(EDGER OFF-BEARER)

Removes boards as they emerge from the rear feed rollers of the edger, and lifts them onto the feed chains of the trimmer with the assistance of the TRIMMER MAN.

GLUE-JOINTER OPERATOR HELPER

(GLUE-JOINTER OFF-BEARER)

(GLUE-JOINTER TAILER)

Assists GLUE-JOINTER OPERATOR by standing at the back of the machine, grasping pieces as they emerge, turning them over to opposite edge, and feeding them back through machine. May push hand trucks of material to and from workplace and sweep and clean about machine.

MATCHER OR MOLDER FEEDER

Places rough-sawed strips of lumber upon machine table and pushes them between feed rollers of a matcher or molder which has been accurately set up by WOODWORKING-MACHINERY SET-UP MAN. May move lever that adjusts feed-roll spacing to afford necessary friction to grip and feed stock through machine.

MATCHER OR MOLDER OFF-BEARER

(MATCHER OR MOLDER OPERATOR HELPER)

(MATCHER OR MOLDER TAILER)

Assists MATCHER OR MOLDER OPERATOR or MATCHER OR MOLDER FEEDER by taking finished stock as it emerges from machine and placing it on hand truck. May push hand trucks loaded with materials to and from workplace, and may sweep and clean about machine. May count pieces of material as they are finished, record their number, and tie them into bundles with twine.

PLANER OPERATOR HELPER

(PLANER OFF-BEARER)

(PLANING-MACHINE TAILER)

Assists PLANER OPERATOR by receiving finished stock as it emerges from planer and placing it on a hand truck. May push hand trucks loaded with materials to and from workplace, and may sweep and clean about machine. May count pieces of material as they are finished, record their number, and tie them in bundles with twine.

RESAW OPERATOR HELPER

(RESAW OFF-BEARER)

(RESAW TAILER)

Assists RESAW OPERATOR by receiving boards, planks, or timbers as they emerge from machine, piling those of required dimensions on a hand truck and sliding those which are too large back across the machine table to be cut again. May push loaded hand trucks of material to and from the workplace and sweep and clean about machine. May help RESAW OPERATOR to lift heavy timbers onto machine table. Sometimes specifically designated as BAND-RESAW OPERATOR HELPER or CIRCULAR-RESAW OPERATOR HELPER, according to the type of machine on which he works.

RIPSAW OPERATOR HELPER

(RIPSAW OFF-BEARER)

(RIPSAW PULLER)

(RIPSAW TAILER)

Assists BAND-RIPSAW OPERATOR or CIRCULAR-RIPSAW OPERATOR by performing substantially the same duties as RESAW OPERATOR HELPER.

SANDING-MACHINE OPERATOR HELPER

(SANDING-MACHINE OFF-BEARER)

(SANDING-MACHINE TAILER)

Assists BELT SANDER, COMBINATION SANDER, CYLINDER SANDER OPERATOR, FLEXIBLE-ARM SANDER OPERATOR, or TURNING SANDER OPERATOR by pushing loaded hand trucks of material to and from the workplace and sweeping and cleaning about the machine. May assist any of these operators in changing sandpaper belts or forms on their machine. When working at a machine provided with automatic feed, receives sanded stock as it emerges from machine, turns stock over, and slides it back for sanding on other side.

SASH, DOOR, AND FRAME ASSEMBLER HELPER

(FRAME NAILER)

Assists SASH, DOOR, AND FRAME ASSEMBLER by performing such minor duties as opening and adjusting clamps to receive glued assemblies, lifting and moving sashes and frames, obtaining finished stock parts from other work areas, and sweeping and cleaning about machine.

TENON-MACHINE OFF-BEARER

(TENON-MACHINE TAILER)

Assists TENON-MACHINE OPERATOR to operate a double-end tenon machine, by lifting finished pieces from feed chain at rear of machine and piling them on a hand truck. May push loaded hand trucks of material to

and from workplace and sweep and clean about machine. May assist in setting up the machine.

TIMBER-SIZER OPERATOR HELPER

Works as one of a crew that lift heavy timbers onto and from a timber sizing machine. May help to adjust and lubricate machine.

THE MAINTENANCE JOBS

INTRODUCTION

These jobs are concerned with the repairing and servicing of plant buildings and equipment. By definition, they form an integral part of every industry. The workers are freely transferable across industrial lines, requiring only a brief period to acquaint themselves with the nomenclature and specific applications of their skill in a particular industry.

The individual jobs are not closely related in an employment sense to one another nor to more typically woodworking jobs. However, such jobs as those of SAW FILER or KNIFE GRINDER are so closely allied to the work of woodworking machine operators that cooperation is necessarily very close. Such jobs may even be filled with unusually qualified woodworking machine personnel.

The employment qualifications for each of these jobs are necessarily distinctive, since each represents a trade or group of related activities. The workers should be skillful and broadly experienced, because in many establishments they will work under the supervision of men who are not versed in the trade knowledge of the various maintenance jobs.

JOB DESCRIPTIONS

CARPENTER

ELECTRICIAN

FIREMAN

KNIFE GRINDER

MACHINIST

MILLWRIGHT

OILER

SAW FILER

SAW FILER HELPER

STATIONARY ENGINEER

TRUCK MECHANIC

Carpenter, Maintenance 5-25.830

CARPENTER
MAINTENANCE CARPENTER
REPAIR CARPENTER
REPAIRMAN

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Uses carpenter's tools and woodworking machinery to repair all wooden buildings and equipment in a woodworking establishment. This is a job requiring considerable versatility as well as general construction knowledge. For example, the repairing of columns and rafters require not only the skillful use of tools and equipment but also complete familiarity with shoring and rigging methods.

Some typical tasks of this worker are the construction of chutes, sorting and measuring tables, lumber storage racks, sheds, and concrete foundations for machines.

Relation to Other Jobs

Promotion from: CARPENTER HELPER.

Promotion to: FOREMAN.

Other relationships: In small establishments this job and the jobs of ELECTRICIAN and MILLWRIGHT may be combined into one job entitled MAINTENANCE MAN.

The less-skilled duties of this job may be performed by a CARPENTER HELPER.

Specialized Qualifications

Familiarity with scaffolding, rigging, and shoring may be required. Familiarity with shop applications of mathematics, including simple mechanics, strength of materials, and structural design, is desirable.

Experience in general maintenance work desirable.

Special Information

Determine: What tools are supplied by worker.

ELECTRICIAN MAINTENANCE ELECTRICIAN

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Keeps all electrical equipment throughout a woodworking establishment in efficient operating condition by repairing and adjusting electric motors, automatic machine controls, transformers, and generators; by splicing and repairing electric wires and cables; by installing and connecting such equipment as relocated control panels and machinery; and performing miscellaneous tasks such as replacing burned-out bulbs and fuses. May operate electrical machinery, supervise electrical work in boilerhouse, and start or stop motors and generators.

Working Conditions

Worker is in danger of serious injury or death by electrocution if the duties of this job include maintenance of any high-tension circuits or equipment using high-potential electricity.

Relation to Other Jobs

Promotion from: ELECTRICIAN APPRENTICE; ELECTRICIAN HELPER.

Other relationships: This job may be added to the usual duties of STATIONARY ENGINEER.

In small establishments this job and the jobs of CARPENTER and MILLWRIGHT may be combined into one job entitled MAINTENANCE MAN.

Specialized Qualifications

Ability to interpret wiring diagrams required.

Knowledge of national and local electrical codes and ordinances required.

Trade school training, apprenticeship, or electrical experience required.

Special Information

Determine: Whether any work with high tension wires or high voltage electricity required.

License required.

Ownership of tools.

Fireman, Stationary Boiler 7-70.040**FIREMAN****LUMBER AND LUMBER PRODUCTS****THE MAINTENANCE JOBS***Job Summary*

Builds fires and stokes boilers with sawdust, wood shavings, wood scrap, or coal to develop and maintain steam pressures for power in the wood-working establishment; starts and stops feed-water pumps to maintain safe and efficient water levels in boilers as indicated by water gages; and checks reliability of safety valves by opening them occasionally. Performs such miscellaneous duties as shaking grates and removing ashes, brushing and scraping soot from combustion chambers, boiler tubes, and breechings as often as necessary, scraping scale from affected boiler parts, and assisting STATIONARY ENGINEER in retubing boilers.

Working Conditions

The work is performed in hot and dirty surroundings.

Relation to Other Jobs

Promotion from: OILER; SLINGMAN.

Promotion to: DERRICK OPERATOR; LOCOMOTIVE-CRANE OPERATOR; STATIONARY ENGINEER.

Other relationships: This job may be added to the usual duties of STATIONARY ENGINEER.

The duties of this job may be specialized and entitled FIREMAN (PORTABLE BOILER), FIREMAN (STATIONARY BOILER), or FIREMAN (POWERHOUSE), according to the type of boiler fired or the location of work.

Specialized Qualifications

A specific class of engineer's license may be required.

Familiarity with the combustion characteristics of sawdust, wood, and bituminous coal desirable.

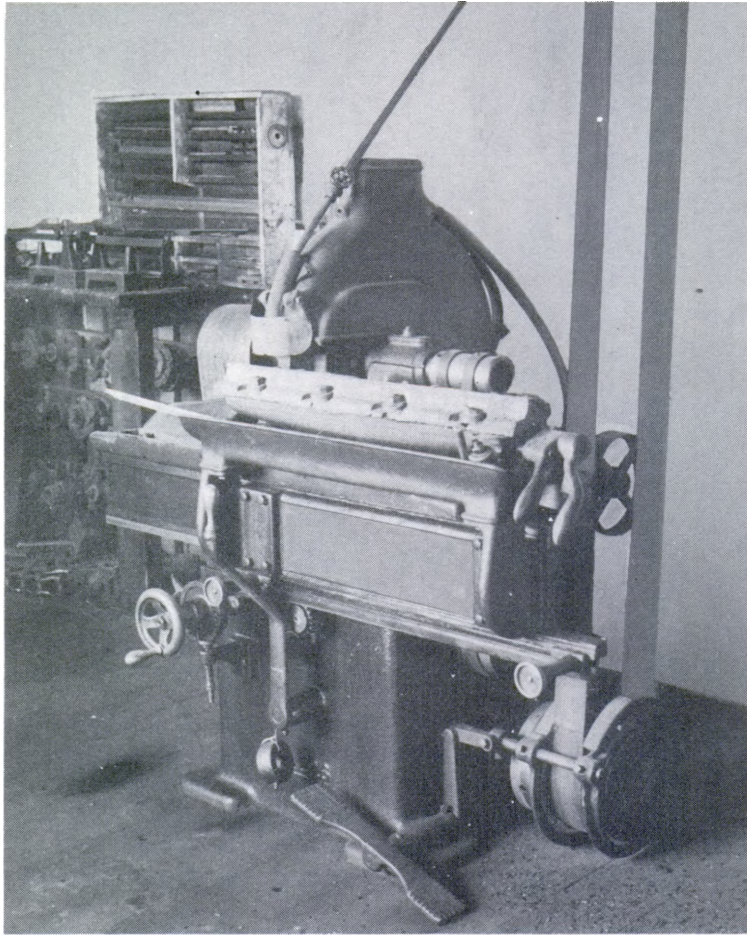
Special Information

Determine: Type and size of boilers fired.

Amount and type of wood fuel used.

What machines worker might be required to operate.

AUTOMATIC KNIFE GRINDER



KNIFE GRINDER
KNIFE GRINDER OPERATOR
KNIFE SHARPENER OPERATOR

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Sharpens variously shaped knives used in such woodworking machines as molders, planers, and shapers, with machine and hand tools.

Work Performed

1. Grinds cutting tool edges with a grinding machine, either by clamping straightedged knives in the tool holder of a power-driven grinding machine and starting it, or by successively manipulating each knife of a cutter head against appropriately shaped wheels of a grinding machine by hand until the knife edges are shaped to conform to samples or templates.
2. Equalizes weights of cutter knives after sharpening by hand grinding the butt ends until each one of a set weighs exactly the same as any other, thus reducing vibration when cutter head is rotated; dresses ground knife edges by rubbing them with an appropriately shaped whetstone; may change grinding wheels or direct a helper to do so.

Equipment

Knife grinder: An automatic machine used for grinding straightedged knives. It consists of a base, an adjustable carriage, and a grinding head. The grinding head holds and rotates the abrasive wheel while the carriage, which is provided with clamps to hold the knife at the desired angle with wheel, moves slowly back and forth to grind the entire length of the knife edge, automatically feeding it toward the wheel a barely perceptible distance at the end of each lateral cycle.

Knife jointer: A machine used to true the cutting edges of knives after they have been mounted in a rotary cutter head. It consists of a base, cutter head support, and carriage. The cutter head is fastened on a shaft that rotates it. An appropriately shaped abrasive stone is mounted on the carriage and brought into contact with the rotating knives by turning a handwheel.

Wheel dresser: A tool which is used for resurfacing grinding wheels. One type consists of a starlike disk of hardened steel and a handle. When the disk is pressed against the rotating grinding wheel it chips minute pieces from the wheel and exposes a fresh and true abrasive surface.

Working Conditions

Cuts from knives and injury to eyes from flying particles of steel are accidents common to this job.

Relation to Other Jobs

Promotion from: Any of the Woodworking Machine Jobs or MACHINIST HELPER.

Other relationships: This job may be added to the usual duties of MACHINIST, STATIONARY ENGINEER, or WOODWORKING-MACHINERY SET-UP MAN.

This job, that of SAW FILER, and heat treating duties of MACHINIST may be combined into one job entitled TOOL DRESSER.

Specialized Qualifications

This worker should be familiar with most of the woodworking machines to be able to shape and sharpen cutting tools intelligently; some experience in operating woodworking machines is therefore required.

Special Information

Determine: Types of grinding machines operated.

Types and shapes of knives and tools sharpened.

Machinist, Maintenance 4-75.010

MACHINIST
ALL AROUND MACHINIST

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Plans and executes all regular and emergency repairs or adjustments of machinery and metal equipment in a woodworking establishment. Performs machine work, bench hand work, and floor assembly, including shaping, turning, boring, planing, grinding, riveting, finishing, lay-out work, and fitting together of metal parts as well as the erecting, dismantling, and moving of heavy machinery.

This is a highly skilled job and requires varied experience at the machinist trade; a general knowledge of woodworking machinery; sufficient familiarity with the properties of metals and their alloys to select appropriate material for specific purposes; a fair ability in sketching or drawing to present understandable descriptions of material, tools, or machine parts which this worker may find necessary to purchase or have made outside; and ability to estimate cost of and time required to complete repair and alteration jobs.

Since the machine and tools of a planing mill or woodworking establishment are usually limited to a few of the most essential, the MACHINIST on such a job may have to perform tasks, usually done with special tools or machines, with whatever equipment is available. To this end he must be sufficiently resourceful to alter the available machinery and make special temporary tools.

Equipment

Drill press: A machine for cutting holes in metal with a spiral, fluted, rotary drill and for such operations as reaming, tapping, counterboring, and spot-facing when equipped with suitable tools. The machine consists essentially of a table on which the work is supported and a power-rotated, vertical shaft (spindle) supported adjustably on an upright column or frame. The drill, or other tool, is fastened into the end of the machine spindle, and as the drill rotates it is moved into the metal by a hand lever or power feed device.

Engine lathe: A machine that supports and rotates metal objects while acting upon them with rigidly supported cutting tools to perform such operations as turning, boring, reaming, facing, and thread cutting. The machine consists essentially of a long horizontal table (bed), a headstock housing a rotary shaft (spindle) mounted rigidly upon one end of the bed, a tailstock supporting a stationary spindle adjustably mounted on tracks (ways) on the bed, and a lathe carriage equipped to support and control cutting tools mounted on the ways between the headstock and

tailstock. The work may be mounted and rotated between hardened steel cones (centers) affixed to headstock and tailstock spindles, fastened to a rotary plate (faceplate) on the headstock center, or clamped in a rotary vise-like fixture (chuck) on the headstock spindle.

Cutting tools mounted in the lathe carriage are caused to act upon the work as it rotates, either by moving handwheels or engaging power feed mechanism on the lathe carriage to perform the required operations.

Milling machine: A machine that cuts metal with rotary, many-toothed cutters. It consists essentially of a massive rigid frame, a movable table on which the work is supported and a horizontal (or vertical) spindle to which milling cutters can be attached. The table, which is adjustable horizontally and vertically, moves in a straight line under the machine spindle, carrying the metal against the rotary cutters that act upon it to perform the required operations.

Planer: A machine that cuts metal by carrying it upon a moving table under rigidly supported, stationary tools. It is especially well adapted for smoothing large flat surfaces, long straight surfaces, or duplicate surfaces on many similar parts, which may be planed at one time. The machine consists essentially of a long rigid base, a table arranged to move back and forth on tracks (ways) along the base, and a rigidly supported bridge to which the tool holders are attached extending across the table. The work is fastened securely to the table which carries it in a straight line under the cutters supported in the stationary tool holders. The cutters can be moved manually or automatically to feed across the work.

Shaper: A machine for the performance of work of similar nature to that of a planer but usually on smaller objects. It consists essentially of a rigid frame, a horizontally and vertically adjustable table that supports the work, and a carriage (ram) that moves horizontally (or vertically on the vertical shaper) on tracks in the frame, carrying the cutting tool across the work. The table can be moved in a horizontal plane either manually or automatically to bring all parts of the work under the cutter. The cutting tool can be moved vertically to adjust the depth of its cut by turning a small crank on the tool holder which is attached to the forepart of the ram.

Working Conditions

This work is carried on in any part of the establishment where repairs or adjustments are required. It is usually dirty, dusty, and greasy, and there is considerable danger to the eyes from flying chips of metal and to the hands from moving machine parts.

Relation to Other Jobs

Promotion from: MACHINIST APPRENTICE; MACHINIST HELPER

Other relationships: The duties of KNIFE GRINDER, MILLWRIGHT, or SAW FILER may be added to this job.

Specialized Qualifications

Complete apprenticeship of four or more years or an equal number of years of practical experience are usually required.

Good eyesight required.

High school or technical education is desirable.

Familiarity with shop applications of mathematics, including fractions, decimals, square root extraction, and simple algebra, as well as a working knowledge of charts, drawings, and tables are required.

Ability in the planning of work to utilize the available shop equipment to the best advantage and with the least interruption to plant operation is required.

Familiarity with the working properties of such metals as cast iron, brass, bronze, copper and steel is required.

The worker should be experienced in the care of bearings on machinery and shafting, and especially in babbitting, bronzing, and scraping bearings.

Knowledge of oxyacetylene, and electric welding and a fair knowledge of powerhouse equipment such as pumps, motors, and condensers may be required.

Special Information

Determine: What metalworking machine tools worker will operate.

With what woodworking machine tools plant is equipped.

Whether electric or oxyacetylene welding will be required.

Whether worker will forge or heat treat metals and to what extent.

Whether worker will design as well as make tools, jigs, and fixtures.

What personally owned tools worker will be required to supply.

MILLWRIGHT 5-78.100

**MILLWRIGHT
MAINTENANCE REPAIRMAN
REPAIRMAN**

LUMBER AND LUMBER PRODUCTS**THE MAINTENANCE JOBS*****Job Summary***

Installs, moves, and repairs such equipment as woodworking machines, power line-shafting, and belting. Makes periodic trips through plant to inspect the operation of the machinery and to anticipate and plan major repairs, thereby minimizing interruptions in the production schedules of the machines.

Work Performed

1. Installs machinery and equipment in new locations. Plans and directs movement of machines from one location to another when plant lay-out is changed.
2. Dismantles, repairs, and reassembles the various woodworking machines; checks alinement of and makes necessary repairs to overhead line-shafting; lubricates bearings and gears.
3. Repairs or replaces broken belting either by cutting out worn section and resplicing or by cutting the proper length from a roll of leather and splicing the ends together to form a new belt.
4. May inspect the sprinkler, plumbing, and heating systems of wood-working plant and make such repairs as are warranted.

Working Conditions

The work is dirty and greasy and is carried on all about the woodworking establishment. There is danger of injuring hands on moving tools and machine parts.

Relation to Other Jobs

Promotion from: MACHINIST APPRENTICE; MILLWRIGHT HELPER.

Other relationships: Maintenance of pipe lines may be performed by a PLUMBER.

The duties of OILER and SAW FILER may be added to this job.

A MILLWRIGHT HELPER may perform the unskilled manual duties of this job.

This job may be added to the usual duties of MACHINIST.

In small establishments this job and the jobs of CARPENTER and ELECTRICIAN may be combined into one job entitled MAINTENANCE MAN.

This job may be added to the usual duties of STATIONARY ENGINEER where State laws permit such combination.

Specialized Qualifications

Must be sufficiently familiar with all woodworking machines in the plant to service them.

Must be an all around mechanic as well as a fair machinist.

Should have experience in rigging in order to move heavy equipment safely and quickly.

Special Information

Determine: Sizes, types, and number of woodworking machines maintained.

Whether worker is required to set up machines.

Number of other workers, if any, supervised.

OILER

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Makes periodic trips through woodworking plant, usually twice daily, oiling and greasing bearings, drive chains, and gears for all plant machinery. Requisitions necessary grades of oil and grease from STOCK-KEEPER. May assist MILLWRIGHT by performing such minor tasks as holding tools, ladders, and machine parts and by making simple repairs under close supervision.

Working Conditions

The work is carried on throughout the plant and is dirty and greasy. There is some danger of becoming entangled in the moving parts of machines.

Relation to Other Jobs

Promotion from: SHOP CLEAN-UP MAN.

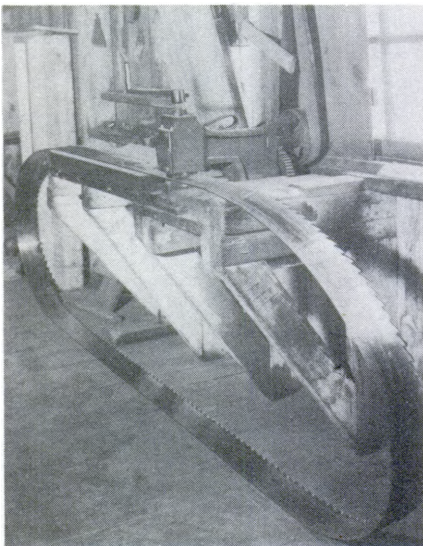
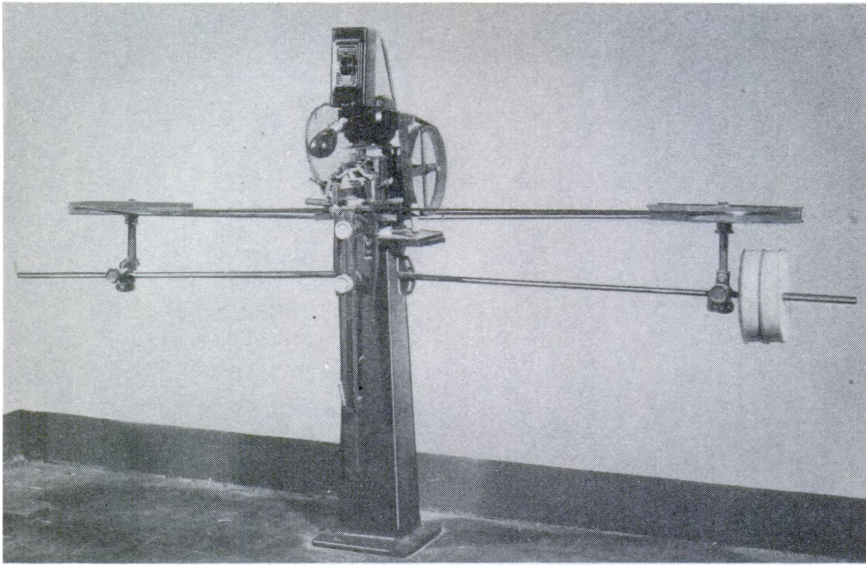
Promotion to: FIREMAN; MACHINIST APPRENTICE.

Transfer from and to: MILLWRIGHT HELPER.

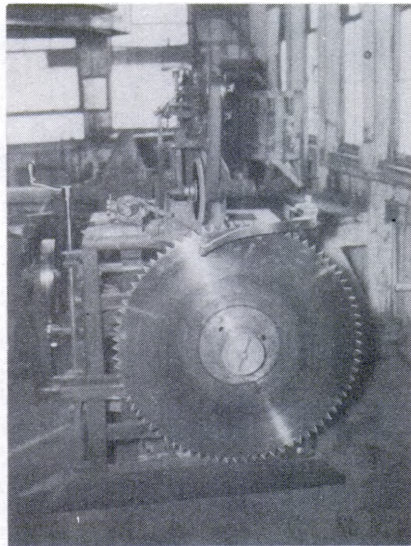
Other relationships: This job may be added to the usual duties of MILLWRIGHT or STATIONARY ENGINEER.

Specialized Qualifications

Machine shop experience is desirable.

BAND-SAW FILING MACHINE

**BAND-SAW TENSIONING
MACHINE**



**CIRCULAR-SAW GRINDING
MACHINE**

Saw Filer, Machine 7-84.240
Also covers: Saw Filer, Hand 7-84.230
SAW FILER
SAW FITTER
SAW REPAIRMAN
SAW SHARPENER

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Sharpens and sets all band, circular, and hand saws in a woodworking establishment, correcting their tension, filing or grinding and setting their teeth, and repairing broken saws by a brazing process.

Work Performed

1. Inspects and tests saws with a straightedge to determine where and to what extent they have lost their tension (shape). For best performance, circular saws should be slightly saucer shaped (dished) and band saws should be slightly higher in the center than at either edge (crowned).
2. Corrects tension of saws by flattening or thinning certain portions of the blade, thereby increasing the length or circumference. This is accomplished by hammering circular saws on a flat steel table or by compressing band saws between metal rollers of a tensioning machine while varying the pressure exerted by the rollers.
3. Sharpens saws by filing the edges of each tooth or by operating a saw-filing machine or saw-grinding machine to accomplish the same result.
4. Swage sets (shapes) saw teeth with a swaging machine or hand swage which compresses the top of each saw tooth and shapes it in such a manner as to widen the cut of the saw.
5. Spring-sets (alines) saw teeth by hand or machine to widen the cut of the saw. May tap alternate teeth lightly with a hammer in one direction and the remaining teeth in the opposite direction. May use a spring-set to accomplish this bending, or may run a spring saw setter over the saw.
6. Repairs broken band saws by brazing, which is a welding-like process requiring preparation of the broken ends, fusing together of the pieces, and finishing of the mended surface.

Equipment

Saw-filing machine: A machine for shaping and sharpening saw teeth automatically with a reciprocating file. The machine, except for the substitution of a file for a grinding wheel, is substantially the same as a saw-grinding machine.

Saw-grinding machine: An automatic grinding machine for sharpening saw teeth. It consists of a base, saw supports or holders, a grinding wheel, which is adjustable for different tooth angles, an automatic stop for different gullet depths, and an automatic feed mechanism that brings each tooth successively into position.

Spring saw-setter: A device that moves over the saw teeth, spreading the tips of adjacent teeth evenly in opposite directions to provide a saw cut (kerf) with sufficient clearance for the saw.

Spring-set: A plier-like hand tool used to accomplish the same results as a spring saw setter.

Swage: A specially shaped metal tool used with a hammer to broaden the cutting ends of saw teeth a bit more than the saw thickness, thus providing a saw cut (kerf) with sufficient clearance for the saw.

Swaging machine: A hand-powered mechanism that shapes saw teeth in the same manner as hand swaging.

Tensioning machine: A device that compresses saw blades between rollers to increase the length of the part compressed by decreasing its thickness.

Working Conditions

Most plants require the use of goggles which practically eliminates the risk of eye injury from flying bits of metal.

Sharp edges of saw teeth endanger the worker's hands.

Relation to Other Jobs

Promotion from: SAW FILER HELPER.

Other relationships: This job may be added to the usual duties of HEAD-SAW OPERATOR, MACHINIST, MILLWRIGHT, or WOODWORKING-MACHINERY SET-UP MAN.

This job, that of KNIFE GRINDER, and the heat treating duties of MACHINIST may be combined into one job entitled TOOL MAKER.

The duties of this job may be divided into separate jobs entitled SAW BRAZIER, SAW FILER (HAND), SAW FILER (MACHINE), SAW GRINDER, SAW SETTER, SAW STRETCHER, and SAW SWAGER, depending upon the specific duty performed or upon the type of equipment used.

Specialized Qualifications

Experience as SAW FILER HELPER required.

Knowledge of arithmetic through fractions required to calculate the spacing and pitch of saw teeth.

Special Information

Determine: Saw-filing equipment used.

Whether worker will prepare saws according to standard specifications or for many uses and many kinds of wood.

Saw-Filer Helper, Machine 9-63.76**SAW FILER HELPER
FILER HELPER****LUMBER AND LUMBER PRODUCTS****THE MAINTENANCE JOBS***Job Summary*

Assists SAW FILER by lifting, carrying, and holding saws, tools, and machine parts. May perform any of the duties of SAW FILER under close supervision.

Relation to Other Jobs

Promotion from: A laborer.

Promotion to: SAW FILER.

Other relationships: This job may be added to the usual duties of BLOCK SETTER, DOGGER, or MACHINIST HELPER.

The duties of this job may be specialized and entitled SAW FILER HELPER (HAND) and SAW FILER HELPER (MACHINE), according to type of equipment used by worker helped.

Specialized Qualifications

Mechanical experience such as garage or shop work desirable.

Special Information

Determine: Extent of filing, setting, or swaging performed under supervision of SAW FILER.

Opportunities for learning the trade of saw filing.

STATIONARY ENGINEER
ENGINEER
POWER ENGINEER

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Superintends the efficient fueling by FIREMAN of boilers with coal or wood waste to raise and maintain sufficient steam pressure for power during working periods. Operates such boiler room machinery as steam engines, turbines, feed-water pumps, oil pumps, and electrical equipment, by performing various tasks required to start and stop them, and by making occasional adjustments while they are in operation to obtain maximum efficiencies. With FIREMAN'S assistance repairs steam and water lines, and retubes boilers.

This worker is generally responsible for the uninterrupted production of power upon which all plant production is dependent.

Equipment

Steam boiler: A steam generating unit. One commonly used type is essentially a brick furnace with grates for burning fuel, over which is suspended a cylindrical, water-filled boiler with numerous tubes through which the hot gases of combustion pass to convert the water into steam.

Reciprocating steam engine: A machine for transforming the heat of steam into mechanical power. High pressure steam is piped to a cylinder where it expands. The steam expansion moves a piston back and forth and rotates a shaft by means of a connecting rod and crank.

Steam turbine: A form of steam engine in which jets of steam flowing within an enclosed chamber at high velocity strike and move blades mounted on a shaft which is free to rotate.

Feed-water pump: A device for forcing water into boilers against the pressure of steam within.

Relation to Other Jobs

Promotion from: FIREMAN.

Other relationships: This job is specialized and further designated by a first-, second-, third-, fourth-, or fifth-class rating, depending upon the worker's experience, knowledge, and responsibility.

In small or moderately sized plants the duties of FIREMAN, KILN MAN, KNIFE GRINDER, MILLWRIGHT, or OILER may be added to this job.

The operation of electrical equipment may be performed by ELECTRICIAN.

Specialized Qualifications

A dependable worker is demanded for this job because of its relation to woodworking production.

In addition to his unquestionable reliability, this worker must possess thorough familiarity with the generation and utilization of high pressure steam.

The minimum amount of experience needed for this job is usually guaranteed by the specific requirements of local or State licenses.

Special Information

Determine: Type and size engines, boilers, and machines operated.

Class license required.

Additional duties required, such as those of KNIFE GRINDER or MILLWRIGHT.

TRUCK MECHANIC
MECHANIC (AUTOMOBILE)
GARAGE MECHANIC

LUMBER AND LUMBER PRODUCTS

THE MAINTENANCE JOBS

Job Summary

Determines the causes of unsatisfactory performance of automotive equipment, locates the defective parts or adjustments that cause faulty performance, and performs the required major or minor repairs and adjustments to restore the machines to satisfactory condition.

Work Performed

1. Adjusts and makes periodic checks on motors: Smooths distributor points with an abrasive paper or file and corrects distributor timing; grinds valves and cleans carbon from motors; replaces worn spark plugs; repairs electrical and ignition systems. May make minor repairs to bodies, such as straightening fenders.
2. Performs major overhauling of vehicles: Takes apart, cleans, repairs, and makes necessary replacement of parts for such units as transmissions, differentials, universal joints, and front wheel assemblies; tightens and adjusts camshafts, connecting rods, and main bearings.
3. Makes road repairs and answers trouble calls from trucks and delivery vehicles which are broken down or damaged outside of plant.

Working Conditions

Exhaust fumes in poorly ventilated shops endanger the health or life of the worker. He may be injured while handling heavy mechanical assemblies or while working under machines supported on jacks or blocking.

Relation to Other Jobs

Promotion from: TRUCK MECHANIC HELPER; TRUCKING HELPER

Other relationships: This job may be added to the usual duties of LUMBER-CARRIER DRIVER, TRACTOR DRIVER, or TRUCK DRIVER.

Specialized Qualifications

Experience as a mechanic in a garage required.

Driver's license may be required.

Special Information

Determine: Makes of equipment serviced.

Size of fleet maintained.

Tools supplied by worker.

Necessity for driver's license.

THE LABORING JOBS

INTRODUCTION

The Laboring Jobs may be defined as flexible and frequently temporary groups of unskilled tasks which can be combined almost at random and assigned to the least experienced and least skilled workers of an industrial establishment. Usually their function is to aid or expedite indirectly the performance of other jobs, rather than to carry out a specific task in the production of any one article.

Since the principal qualifications for any of these jobs are sufficient strength and endurance, supplemented if possible by a moderate familiarity with the environment and terminology of the industry, any of these workers can fill nearly any of the jobs with equal facility.

This simplicity and similarity of employment qualifications permits the ready transfer of these workers to laboring jobs in many industries.

It would seem at first thought that these jobs would form logically a sort of reservoir from which workers for the more skilled jobs could be drawn as the opportunities arose. Indeed this is true in a few establishments where a conscientious personnel policy is in force. More generally, however, the members of the laboring group find very limited opportunity for promotion, because of the intense competition from APPRENTICES and trade school graduates for the more skilled jobs.

Because to many the title LABORER bears the connotation of one who performs a dead end job of low skill, there is a tendency to replace this general title with a specific one which is more descriptive and may be more acceptable to the worker. Thus, the flexible, variable, and temporary job with the general title of LABORER is frequently divided into any number of jobs and designated according to the tasks performed or the location of the work.

The more typical of these laboring jobs are defined and listed below.

JOB DEFINITIONS

BOLTER TAILER

(BOLT PULLER)

Receives cut lengths of logs or mill slabs from conveyor of bolting saw and stacks them on cars, hand trucks, dollies, or a conveyor. Discards worthless pieces as waste.

BUNDLER

(PULLER)

Removes pieces of hardwood flooring from the compartments of a grading rack, arranges them in a tying rack, and ties them into bundles with heavy cord or thin wire. May stamp each bundle to indicate its size, grade, or destination. May mark a tally sheet and assist STOCKKEEPER as directed.

BURNER MAN

Attends to the burning of waste in open fires at sawmills which are not equipped with incinerators designed for burning waste wood or which do not consume the waste as fuel. Guards against scattering sparks and spreading of fire

CANT SETTER

(CANT LOADER)

Transfers cants from rollers leading from head saw to table of gang saw in a sawmill. Sets single cant in place on table if cant is large, or places smaller cants side by side and one on top of another to capacity of saw, using a cant hook to aline them.

CAR WHACKER

Lines freight cars with heavy paper to protect lumber from dust or dirt during shipment, by measuring, cutting, and fitting paper and attaching it to inside of car with nails, and light wooden strips.

DROP-SORTER TENDER

(LUMBER STRAIGHTENER)

Stands by conveyor that carries lumber to sorting table in a sawmill and keeps lumber alined with holes in a table that serve to sort it according to length by allowing similar pieces to drop through. Starts and stops conveyor.

EXCELSIOR MILL LABORER

Sweeps and cleans floors of excelsior mill to prevent refuse and inferior excelsior from accumulating and forming fire hazards, using a scoop and a broom. May assist in oiling excelsior machinery. Assists other workers in excelsior mill when called upon. May spread green excelsior over large floor area for drying.

FUEL-HOUSE MAN

Rakes sawdust, shavings, and other waste with pike pole or rake onto conveyor that carries it to boilers for use as fuel. Assists FIREMAN when called upon to do so.

JANITOR

Sweeps and cleans the floors of plant offices, empties wastepaper baskets, dusts furniture, and washes windows. May run errands.

LOG WASHER

Directs a high pressure stream of water from a hose on logs as they are drawn up slip or chute from pond to log deck to remove any loose dirt, gravel, or stones from bark of logs.

LUMBER HANDLER

Moves lumber or wood products by hand from place to place within a woodworking establishment. Lifts pieces of lumber by hand and places them upon a conveyor, dolly, elevator, freight car, truck, or wagon, using a lumber hook to grasp pieces; or uses a rigidly supported metal roller over which he slides long or heavy pieces instead of lifting them. Works as a member of a

crew, usually under immediate supervision of FOREMAN, LUMBER INSPECTOR, or STOCKKEEPER.

MILL SWEEPER

(MILL CLEAN-UP MAN)

(SHOP CLEAN-UP MAN)

Gathers and sorts scrap wood that accumulates around woodworking machines. Sweeps and cleans about machines. May assist machine operators when called upon to do so.

MOUNTER

Hammers small wooden articles, such as curtain-pole ends and door stops, onto nails protruding from sides of rotary racks to prepare them for painting by DIPPER. Mounts racks on shafts of drying machine which rotates them to hasten drying after DIPPER has immersed articles in paint.

PACKER

Fills crates with small articles and excelsior prior to shipping. Nails covers and metal strips on crates and generally assists SHIPPING CLERK.

SAWMILL LABOREER

Assists any of the sawmill workers in handling logs or cutting them into lumber. Must be husky and strong and be able to act carefully and obey directions in this hazardous location.

SHOP CLEAN-UP MAN

(SHOP LABORER)

Sweeps and cleans floors, windows and machines in a specified plant shop.

SKIDWAY MAN

(LOG UNLOADER)

Assists in unloading logs from railway cars into storage pond at sawmill. Signals engineer when car is properly spotted. Releases chains from around logs on car. Uses cant hook or peavey to roll logs which do not fall free when chains are loosened from car. Chops side stakes from car with ax to free logs if stakes are used instead of chains.

TRUCKING HELPER

Assists TRUCK DRIVER in delivering orders. May deliver orders that require no money collection, or may turn truck around while TRUCK DRIVER attends to more detailed delivering.

TUMBLING-BARREL TENDER

Shovels or lifts small wooden articles into a power-rotated barrel in which they are polished by being tumbled against one another.

WATCHMAN

(NIGHT WATCHMAN)

Patrols yard and mill or factory after the plant working hours to prevent loss of property by fire, theft, or vandalism. May be required to use pistol and to have pistol permit and bond.

YARD LABORER

Picks up debris and wood scrap around lumberyard. May help lumber handling crew with large and heavy timbers. Rakes driveways and unpaved portions of yard.

GLOSSARY

In this glossary are presented such terms, commonly used in the industry, as have been referred to in the job descriptions. No attempt has been made to compile a complete glossary of Lumber and Lumber Products nomenclature.

BALUSTER, STAIR: A post or pillar used to support the handrail along a staircase.

BEVEL: (I) The term applied to the edge of an article which has been cut at an angle of other than 90 degrees to the broad surface. (II) To cut a BEVEL on an article.

BILL OF LADING: A list of articles that comprises a shipment. When signed by an agent of the carrier accepting the shipment, it serves as a receipt to the shipper.

BIT: A rotary cutting tool used to bore holes or for such operations as routing or wood carving.

BLUEPRINT: A copy of a writing or drawing, made in white lines on a blue background by exposing sensitized paper placed under a tracing of the original to strong light.

BOARD FOOT: A volume measurement of wood equal to that of a piece of wood one foot by one foot by one inch.

BOLSTER: One of two or more crossbeams, or timbers, upon which lumber is piled so that the entire stack of lumber may be lifted and transported by a LUMBER CARRIER by engaging the bolsters which support the entire stack.

BOLT: Timber that has been cut into short lengths.

BOOM: A long spar or beam projecting from a derrick or crane, used to guide the load as it is lifted and moved and to support the cables by which the load is lifted.

BORING (metal): The process of enlarging and finishing the interior surface of a cylindrical hole in a metal part by the action of a rotary cutting tool or that of a stationary tool fed against the surface as the part is rotated.

BOX HOOK: See LUMBER HOOK.

BRACE: An instrument for holding and turning a BIT.

BRAZING: The process of soldering metal parts together with an alloy relatively infusible as compared with common solder, such as hard solder or brass.

BREECHING: A horizontal, heavy steel duct that carries smoke and gases from boiler to chimney.

CAM: A shaped machine part, attached to a shaft, that transforms the regular rotary motion of the shaft into reciprocating motion of any predetermined character.

CAMSHAFT: A rotary machine shaft to which shaped pieces of metal (CAMS) are attached. As the shaft rotates the cams, they impart a predetermined motion to other machine parts that rest against them.

CANT HOOK: A wooden lever with an adjustable, sharpened hook at one end, used to turn and move logs by gripping them between the end of the lever and the hook.

CAR MOVER: A special crowbar, used to inch railroad cars along track for short distances.

CARRIAGE BLOCK: One of a series of adjustable rests, on a LOG CARRIAGE, against which logs are supported and by which they are moved into the proper position for the sawing off of a SLAB or PLANK.

CASTING: A metal object made by pouring molten metal into the hollow of a mold and allowing it to solidify.

CEILING: Narrow boards, usually tongued and grooved and worked to standard width and thickness, used as the overhead lining of a room.

CENTER: One of a pair of pointed metal supports that are pressed into the ends of a piece of wood to support it while it is rotated and worked upon in such machines as a LATHE.

CHAIN SAW: A saw composed of an endless roller-link chain with a saw tooth projecting from each link.

CHUCK: A device for holding BITS or supporting wood while it is worked.

CLEAT: A wooden strip that is fastened across boards to hold them together and to prevent them from warping or buckling.

COUNTERBORING (metal): The process of enlarging the top of a drilled hole in a metal part, so that the sides of the main and enlarged portions of the hole are concentric and the plane in which the two portions meet form a square shoulder.

CROSSCUT: A cut made by sawing across the grain of the wood.

CUTTER: See CUTTER KNIFE.

CUTTER BLADE: See CUTTER KNIFE.

CUTTER HEAD: A hollow metal block that rotates upon a machine SPINDLE and supports the CUTTER KNIVES with which the wood is shaped.

CUTTER KNIFE: A sharpened chisel-like tool of hardened metal used in a wood-working machine to cut and shape wood.

CUTTING BIT: See BIT.

CUTTING TOOL: See CUTTER KNIFE.

DADO: A rectangular groove or slot made in the face of one piece of wood to receive another piece.

DEAD CENTER: A pointed shaft that is attached to the TAILSTOCK of a LATHE. It is forced into the center of one end of a piece of wood and serves as a point about which the wood rotates.

DIFFERENTIAL: An assembly of gears that connects the drive shaft and rear axle of an automobile in such a manner that the two rear wheels can rotate at different speeds when turning a corner.

DOG: One of a series of clamping devices on a sawmill LOG CARRIAGE that holds logs firmly in position as they are cut into planks by the HEAD SAW.

DOWEL: A round, wooden rod or pin that is used to join two pieces of wood by being sunk and glued into corresponding holes in each piece.

EMERY WHEEL: A power-rotated wheel made of consolidated emery powder or surfaced with emery cloth, used for grinding and polishing metal parts.

FACEPLATE: A metal plate that supports and rotates wood in machines of the lathe type.

FEED BED: A movable table that supports the work and moves it into position to be acted upon by the tools of a woodworking machine.

FEED COLLAR: See GUIDE RING.

FEED ROLLERS: Grooved, metal rollers that serve to guide and feed stock through a woodworking machine.

FENCE: A metal plate, set perpendicular to the table of a woodworking machine, that guides stock against the rotating cutters or saws of the machine.

FLOORING: Strips of wood which have been cut to standard dimensions with a tongue on one side and a corresponding groove on the other. The strips are assembled and nailed in place to lay floors.

FLUTE: To cut a series of decorative grooves into the surface of a wooden part.

FLUTES: A series of decorative grooves cut into the surface of a wooden part.

FORGE: (I) A small, open, coke or coal furnace used to heat metal to prepare it for shaping.

(II) To shape hot metal by hammering or pressing it with hand tools.

GENERATOR: An apparatus that converts mechanical motion to electrical power.

GLAZIER'S POINTS: Small, flat, triangular or diamond-shaped pieces of metal, used to hold glass in window sashes.

GOUGE: A kind of chisel with a concave-convex cross section, used for cutting holes, channels, or grooves in wood.

GRINDING HEAD: The part of a grinding machine that supports an EMERY WHEEL.

GUIDE FENCE: See FENCE.

GUIDE RAIL: See FENCE.

GUIDE RING: A metal ring used to guide and steady stock while it is being worked.

GULLET: The space between tips of adjacent saw teeth.

HEADSTOCK: The part of a LATHE that supports the rotating shaft (SPINDLE) and CHUCK or FACEPLATE that engages the work.

HOLD-DOWN: See PRESSURE BAR.

JAMB: The vertical side part of a window or door frame.

JIG: A device that guides the BIT or cutter of a woodworking machine mechanically to produce the desired work.

KERF: The cut made in a piece of wood by the blade of a saw.

KNOT: A hard, gnarled, and usually round or oval-shaped section (defect) in lumber, caused by a junction of a branch with the body of a tree.

LIVE CENTER: A pointed shaft that is attached to the HEADSTOCK of a LATHE. It supports one end of and provides rotation for the piece of wood being turned.

LOG DECK: A strongly constructed sloping platform on which logs are accumulated ready for the sawmill crew.

LUMBER HOOK: A short steel hook with a wooden handle, used to move lumber.

MANDREL: A power-rotated shaft which supports and rotates the disk of a power saw.

MASKING TAPE: An elastic paper tape, gummed on one side, that is placed over the surfaces surrounding areas that are to be sprayed with paint to prevent the paint from striking them.

MILLWORK: Finished woodwork cut to desired shape and size, which is commonly made on the machines of a planing mill.

MITER: (I) A diagonal cut, usually at 45 degrees across the end of a piece of wood. Its purpose is to provide a neat junction when two pieces are brought together at right angles as at the corners of a picture frame. (II) To cut the ends of pieces of wood diagonally across the grain so that they may be joined or matched at an angle.

MOLD: A hollow form into which molten metal is poured to cast it into a predetermined shape. The form is usually made by compacting sand around a pattern and withdrawing the pattern from the sand, thus leaving a hollow.

MOLDING: Strips of wood which have been shaped, fluted, or rounded, used as decorative trim on woodwork.

MORTISE: A hole, slot, or hollowed-out space (groove) into which is to be fitted a corresponding projection (TENON) of another part to form a rigid joint.

OILSTONE: A WHETSTONE that is lubricated with oil when used.

PEAVEY: A strong pole with a spike and a hinged hook at one end used to grip, roll, or guide logs.

PIKE POLE: An iron-pointed lever used in moving logs.

PITCH POCKET: A defect in lumber caused by the presence of openings between growth rings of the log from which the lumber was cut.

PITCH, STAIR: The angle of slope of a staircase, as measured from the horizontal.

PLANING (metal): The process of cutting metal from the surface of a metal part to reduce it to required thickness or to produce a smooth, flat surface.

PLANK: A thick, wooden board.

PRESSURE BAR: A vertical, adjustable guide (bar) on a woodworking machine that prevents wood from buckling vertically as it is fed through the machine.

PRIMER: A liquid coating applied to unpainted surfaces to prepare them for subsequent coats of paint.

PULLEY-MORTISE: A groove cut in the jamb of a window frame for insertion of a pulley over which the SASH CORD will run when the window and frame are installed.

PUTTY: A mixture of linseed oil and powdered chalk (whiting) used to seal the junction of window glass with the SASH in which it has been installed.

RABBET: (I) See DADO. (II) To cut a channel, recess, or groove in the surface of a wooden part, usually for the purpose of receiving another part so as to form a tight, close-fitting joint.

RAFTERS: The sloping wooden members of a roof to which the roof sheathing is nailed.

REAMING (metal): The process of enlarging a drilled hole in a metal part by the action of a rotating, grooved tool.

REEL: A wooden cylinder with a hole through the center, about which such materials as wire and yarn are wound.

RIGGING: (I) A system of cables and pulleys used to haul or hoist logs. (II) The art of moving and installing heavy equipment.

RIPPING FENCE: *See* FENCE.

RISER, STAIR: The upright piece of a stair step between the TREADS.

ROTARY CUTTER: *See* CUTTER KNIFE.

SASH: The wooden framework that holds the glass of a window.

SASH CORD: The rope or chain that attaches a counterweight (sash weight) to a window SASH.

SASH-WEIGHT POCKET: An opening in a window frame that provides access to the sash weight after a window has been installed.

SAW GUIDE: An adjustably supported, slotted piece of wood or metal through which the blade of a power saw passes, used to hold the saw blade to its path and prevent twisting or undue vibration.

SET: The broadening or bending out of line of saw teeth that makes them cut a slot (KERF) broad enough to accommodate the saw blade without binding.

SHAPING (metal): The process of planing or grooving the surface of a metal part with a moving cutting tool fed against the part which is held stationary.

SHORING: Heavy pieces of timber that are used for temporary support of a great weight, such as a ship in drydock or a wall under construction.

SIDING: Boards of special design nailed horizontally to form the covering of the outside wall of a wooden structure.

SLAB: A piece of wood resulting from the first cut of a saw along a log. It is flat on one side and curved on the other.

SPINDLE: A shaft which transmits a rotary motion to the tool of a machine.

SPOT-FACING (metal): The process of producing a smooth flat surface around the top of a hole in a metal part for the level seating of a nut or the head of a screw or bolt.

SPUR CENTER: A CENTER which is attached to a SPINDLE and is designed to transmit the rotary motion of the SPINDLE to the wood it supports.

SQUARE: An instrument having two straight edges, set at right angles to each other, used for measuring right angles.

STILE: The vertical side piece of a window SASH or door.

STRINGER, STAIR: One of the strong, sloping side pieces which support the TREADS of a staircase.

SWAGE: (I) A tool used to widen the points of teeth on a saw. (II) To widen the points of saw teeth by the use of a hand tool (SWAGE) or a swaging machine.

SWAGE-SET: *See* SWAGE II.

T-SQUARE: A drawing square consisting of a straightedge fastened to a headpiece at right angles. By resting the headpiece against the edge of the drawing board, the square can be used to establish parallel lines.

TABLE-STOP: *See* FENCE.

TAILSTOCK: An adjustable, sliding part on the bed of a LATHE, that supports a blunt metal point. Work is supported in the LATHE by engaging a hole on one end with this point and fastening the other end to the SPINDLE in the HEAD-STOCK.

TALLEY SHEET: A ruled or printed sheet upon which marks or figures, used to record quantities of materials, can be entered quickly and conveniently.

TAPPING (metal): The process of cutting an internal screw thread in a drilled hole in a metal part, by the action of a rotating tool with appropriately shaped cutting edges.

TEMPLATE: A thin, flat pattern used as a guide in working wood.

TENON: A projecting rib or tongue on a piece of wood which is fitted into a MORTISE or groove on another piece of wood to form an interlocking joint.

THREAD-CUTTING (metal): The process of cutting a screw thread on the surface of a cylindrical metal part by the action of rotating tools with appropriately shaped cutting edges.

TIMBER: A heavy piece of lumber, usually greater than six inches in its least dimension.

TONGUE: *See* TENON.

TRAM: A four-wheeled car running on track on which material is carried from place to place.

TRANSFORMER: An electrical device that raises or lowers the potential of an alternating electrical current.

TREAD, STAIR: The horizontal board of a stair step upon which the foot is placed.

TURNING: (I) Any wooden article that has been shaped to a circular cross section on a LATHE. (II) The process of cutting a part to circular shape in a machine that supports and rotates the part as one or more cutting tools are forced against the rotating surface.

VICE: A clamping device with two jaws that can be drawn together by turning a screw

to grip and hold objects while they are worked upon.

WHETSTONE: A natural or artificial stone on which chisels, knives, cutting blades, and other woodworking or metalworking tools are rubbed to sharpen them.

WINCH: A hoisting device consisting of a power-driven drum and chain or cable which can be wound around the drum. It is used to raise and move heavy objects.

WINDOW STILE: *See* STILE.

WORKING DRAWING: A drawing made to scale, intended to be followed by workmen in setting up machines, and in the operation of machines to produce the specified product.

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